The Development Process for New Residential Neighbourhoods in the Sultanate of Oman

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ABSTRACT

The development process for new residential neighbourhoods in the Sultanate of Oman is moving very slowly, and the majority of the residential and public facilities and serviced land plots distributed do not meet long term planning objectives. This research aims to achieve a clearer understanding of the obstacles affecting the development process in new residential neighbourhoods, to suggest some practical solutions to improve them. These issues, in general relate to the housing policy system, land use design layout regulations, and the implementation of public facilities and services. Thus, the research has adopted a mixed method, drawing on secondary data collected from existing literature, reports, and primary data collected by interviewing housing sector professionals, conducting citizen questionnaires and performing site visit observations at selected distributed new residential neighbourhoods.

The findings show that the housing policy system mostly targets individual citizens not households, while failing to offer strategic spatial plans or approved land use design standards for designing new residential neighbourhoods. Furthermore, implementation of public facilities and services takes place after the construction of distributed residential land plots, in accordance with government organisations' budgeting and planning.

The research analysis and discussion conclude with some practical recommendations to policy makers to improve the implementation development process for new residential neighbourhoods. Recommendations include altering the housing policy system to targets households, by granting residential land plots or completed house units and offering subsidised housing loans administrated by the government and delivered by the private sector. Designs for new residential neighbourhoods should utilise strategic spatial plans and approved land use design standards. Implementation of key public facilities and services should take place prior to the distribution of residential land plots, in coordination with Ministry of Housing and municipal councils and financed by a partnership between government and private sector. It is hoped that the research recommendations will contribute to ongoing improvements to the development process for new residential neighbourhoods in the sultanate of Oman.

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GLOSSARY

Alshorra Council: The council that is consists of 85 members elected by the citizens and representing all towns (Walayet).

State Council: The council that is consists of 85 members appointed by the Sultan from academics and retired head officers from public or private sectors.

Ministers Council: The council that is consists of the Ministers.

Municipal Council: The council that is consists of several members representing the Governorate, some of them elected by citizens and others appointed by the Governor.

Local Committee: Local community members for specific activities appointed by the Waly.

Governorate: A part of administrative division of the country consists of several towns (Walayets).

Governor: The general administrative head of the Governorate.

Walayet: A small state or town in the Governorate.

Waly: The general administrative head of town (Walayet).

ABBREVIATION

CA: Citizens Applied For Land

CG: Citizens Granted Land

GCCs: Gulf Cooperation Countries

GDP: Gross Domestic Product

GIS: Geographical Information System

KTSP: Key Town Strategy Plan

LMP: Local Master Plan

LREL: Land and Real Estate Law

OEA: Omani Economic Association

OFMR: Oman Frequency Modulation Radio

ONSS: Oman National Spatial Strategy

OTV: Oman Television

RO: Rial Omani

RSP: Regional Structure Plan

SHL: Social Housing Law

SPSS: Statistical Package for the Social Sciences

CHAPTER 1

INTRODUCTION

1.1 Introduction

This research aims to study improvements in the development processes for new residential neighbourhoods in the Sultanate of Oman. It will focus on the housing policy system, land use design layout regulations, and the implementation of public facilities and services. The Sultanate of Oman has made great advances towards meeting modern welfare requirements for its citizens, through initiating long and short term development plans. The government has created many new residential neighbourhoods, in both urban and rural areas, and supported its citizens to help them own their own homes. However, many of the planned new residential neighbourhood plots have not yet been constructed, nor their public facilities and services developed.

Consequently, this research is undertaken to examine why there has been such slow development in new residential neighbourhoods, and to suggest how the current situation might be improved upon. Unfortunately, there are few studies specifically related to the development process in Oman's residential neighbourhoods. However, many studies regarding residential programmes have been carried out internationally, and these are referenced in this research. This chapter explores the research background, the research aims, objectives and the key questions raised. It also presents the scope of the research, its significance, and the thesis structure.

1.2 Research background

In Oman, the Ministry of Housing takes primary responsibility for determining the location and distribution of neighbourhoods; meanwhile, other stakeholder organisations develop public facilities and services. When planning a new residential neighbourhood, the Ministry of Housing provides a land use design layout, and awards ownership of land plots, with various uses assigned, to citizens and public facilities' and services' organisations.

Typically, new residential neighbourhoods are distributed to citizens without any form of services provision in place for the residential land plots granted (see Chapter 3) (Ministry of Housing, 2008). This research explores and discusses issues related to the housing policy system, the land use design layout, and the implementation of public facilities and

services, aiming to determine how to improve the process of developing new residential neighbourhoods. Figure 1.1 shows how this research will examine the process of the development of new residential neighbourhoods in the Sultanate of Oman.

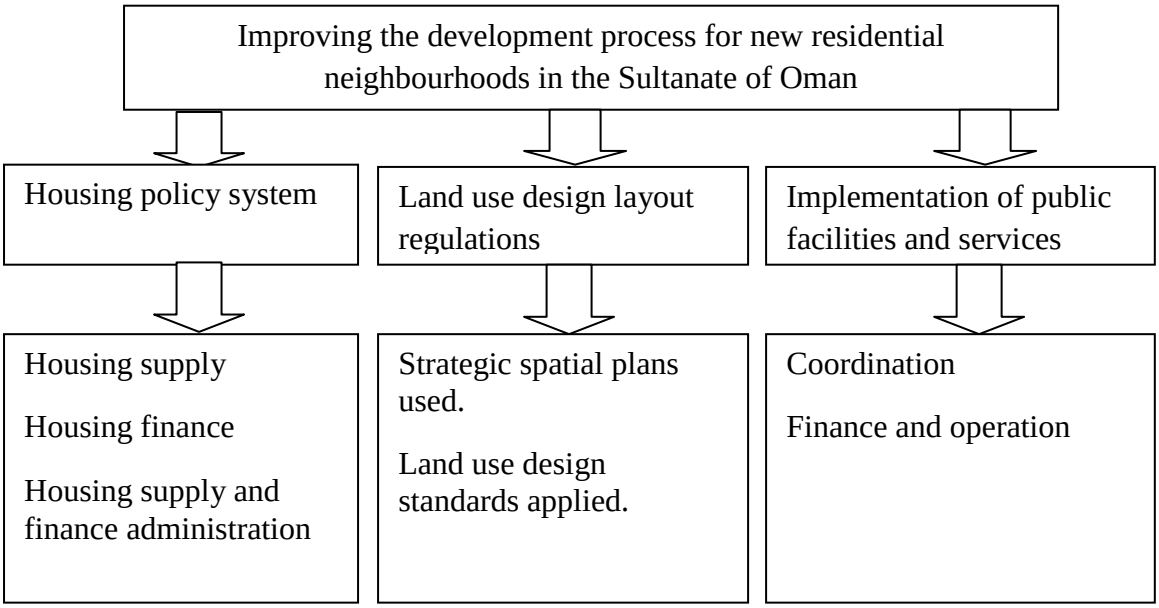

Figure 1.1: Research issues

To evaluate the housing policy system, this research will focus on how citizens are supplied and granted residential land plots, housing loans, completed houses, and the related administrative procedures. A subsequent discussion, regarding land use design layout regulations, will focus on the types of strategic spatial plans employed, and the land use design standards applied when designing and implementing new residential neighbourhoods and the types of facilities and services that should be in place prior to the distribution of residential land plots. Debates concerning the implementation of public facilities and services, will concentrate on explain how developments are co-ordinated, financed and operated.

Slow application process and long waiting lists

Oman's Land and Real Estate Law (LREL) gives the Ministry of Housing formal responsibility over various aspects of citizens' housing. The Ministry supplies and grants residential land plots to individuals (both males and females), and offers low-income groups completed houses and interest free loans (Ministry of Housing, 2008). The new housing policy system (see Chapter 3) allows all male and female citizens over 23 years old to apply for a grant to own a residential land plot. The previous housing policy system

only permitted the grant of residential land plots to men aged 24 years or older, and to female heads of households.

Residential land plots are now distributed in response to demand applications, on an equal basis to both families and individuals (both males and females). Some individuals who have been granted residential land plots are not considered to be in a suitable position to receive them because they are students without regular income, or are unmarried and living with their parents or even owned housing services.

Despite the increasing number of housing applications, a number of factors effect potential householders' abilities to build their own houses, slowing down the development of new residential neighbourhoods. For example, although in principle citizens can access subsidised interest housing loans through the Housing Bank, which is jointly owned by government investment companies, housing finance programmes are often slow to release funds meaning individuals might have to wait a long time for their money. The alternative is to borrow from commercial banks, which offer unsubsidised housing loans at high interest rates. An additional problem is the shortage of private developers able to buy vacant land directly to build houses for sale to different income groups (Ministry of Housing, 2008).

Adverse environmental impact of over-allocation and poor setting

A second concern raised in this research, relates to the land use design layout regulations applied when executing the designs for new residential neighbourhoods.

First, in relation to strategic spatial plans, the Supreme Committee for Town Planning (2009) report states that the key town strategy was the preferred spatial strategy. This strategy focused on promoting development within designated towns and secondary centres, centres of growth, and local centres, to provide public facilities and services to local citizens (see Chapter 3). However, at the local level, there are no approved master plans and no designated housing zones.

The Ministry of Housing's regional town planning offices have produced flexible local land use maps, which function as structural plans, to assist planners when designing new residential neighbourhoods by applying land use design regulations in relation to plots, roads, public facilities and services. The designs of these new residential neighbourhoods produce as many residential land plots as possible to service individual demand applications. The authorities approved the locations selected by town planners; however,

the majority of these town planners failed to apply the land use design standards approved by the government, because they wanted to distribute a maximum number of land plots as quickly as possible, to meet the rising demand.

This over-allocation and ill-considered distribution of residential land plots has consumed large areas of formerly open space, and resulted in many citizens being allocated land plots that are distant from urban areas and their current places of residence (Ministry of Housing, 2008). Such an approach to land use design and layout does not support the sustainable development of new residential neighbourhoods, which need to be effective in economic, social, and environmental terms.

Lack of servicing discourages owners from building and creating homes

A third issue relates directly to the effects of failure in the implementation of public facilities and services in new residential neighbourhoods. Although after being granted residential land plots, citizens are expected to acquire finance and seek out contractors to construct their houses independently, in the absence of facilities and services some citizens choose not to do so.

Many plots are delivered as vacant residential land plots, but have no associated public facilities and infrastructure such as roads, schools, health centres and playgrounds, and lack public services such as water, sewage, municipal services, electricity, and telephone lines. According to the Ministry of Housing (2008), it is the responsibility of other government organisations to design public facilities and services, and to oversee financial and operations planning. However, public facilities and services organisations can take a long time to plan, construct, and bring into operation essential facilities (Ministry of National Economy, 2009), with the result that many people find that the residential land plots, of which they are in receipt, have no basic services.

These problems require exploration and resolution to ensure the realisation of the governments' plans to maximise home ownership and to improve the development process for new residential neighbourhoods.

1.3 The research aim, objectives and key questions

The aim of this research is to achieve a clearer understanding of the obstacles adversely affecting developments in new residential neighbourhoods in the Sultanate of Oman, and to suggest some strategies to resolve them. To achieve that aim, the researcher has identified four objectives. In order to meet each objective, a key question was formulated

and subdivided into a series of further sub-questions, to which answers are developed throughout the thesis.

Objective 1:

To identify the different relevant theories and practices relating to the three research issues: housing policy systems, land use design layout regulations, and implementation of public facilities and services for new residential neighbourhoods;

As well as contributing to knowledge on housing policy practices in other Gulf Cooperation Countries (GCCs), and to develop a conceptual framework to manage the existing development process.

Key question 1: Which housing provision practices might be usefully developed in Oman?

Sub-questions:

1- What is the importance of residential neighbourhoods in the urban planning environment?
2- To what extent is the type of housing policy system important when developing new residential neighbourhoods?
3- Why is it important to provide strategic spatial plans and employ land use standards when developing new residential neighbourhoods?
4- What are the types of public facilities and services that should be provided in a new residential neighbourhood before delivery? And, what is the role of coordination and public and private partnership in implementing them?

Objective 2:

To explore and analyse the existing development process for new residential neighbourhoods in Oman, in relation to the research issues, and to identify the obstacles facing the development process.

Key question 2: What are the existing obstacles that might delay development processes in new residential neighbourhoods in Oman?

Sub-questions:

1- To what extent do the strategic development plans, government organisations, and community actors, work together to develop new residential neighbourhoods?
2- What is the impact of granting individuals residential land plots and offering a housing finance program through a single organisation, on the development process for new residential neighbourhoods?
3- Do the strategic spatial plans, and land use design standards employed, meet approved Omani urban planning regulations?
4- Are the coordination, financing and operational procedures of existing public facilities and services organisations capable of providing adequate public facilities and services in the new residential neighbourhoods?

Objective 3:

To investigate and analyse the views of professional experts and citizens on the development process for new residential neighbourhoods in Oman, and to evaluate the rate of their existing development by visiting examples already delivered in the Governorate of North Al-Batinah.

Key question 3: What types of housing policy system, land use design layout regulations and public facilities and services are needed to improve the development process for new residential neighbourhoods in Oman?

Sub-questions:

1- How should the citizens' housing service be supplied, financed and managed?
2- What type of national strategic plan and land use design standards should be applied as a basis for planning new residential neighbourhoods?
3- What types of public facilities and services do citizens need to have in place before new residential neighbourhood plots are distributed, and how might this process be coordinated, financed and operated?

Objective 4:

To develop the knowledge and understanding that would enable improvements to the housing policy system, the land use design layout regulations and the implementation of public facilities and services, to improve the development process of new residential neighbourhoods in Oman.

Key question 4: What factors might improve the development process of new residential neighbourhoods in Oman?

Sub-questions:

1- What type of housing policy system might meets citizens' needs, and develops the process of creating new residential neighbourhoods more effectively?
2- What form of land use design layout regulations might improve the development of new residential neighbourhoods, to promote the objectives of sustainable development?
3- What types of public facilities and services should be provided before the distribution of residential land plots?
4- How might the implementation of public facilities and services be coordinated, financed and operated?

1.4 The research scope

The research will detect and explore the factors inhibiting the development of new residential neighbourhoods in the Sultanate of Oman, and suggest some solutions to modify them. It will specifically emphasise issues concerning the housing policy system, land use design layout regulations and the implementation of public facilities and services.

The theoretical and practical study will involve both secondary and primary data collection. The secondary data collection will include data on the importance of housing policy systems, including the strength of developed countries' housing policy systems, suggestions for possible improvements to housing policy systems in developing countries, and the practice of housing development in the Gulf Cooperation Countries (GCCs). It also covers land use design layout regulations, such as strategic spatial plans, and land use design standards. The study covers the implementation of public facilities and services, as they relate to organisational coordination and public and private partnerships involved in developing new residential neighbourhoods. The aim is to construct an analytical conceptual framework based on the issues reviewed, and to apply this to evaluate the existing development process for new residential neighbourhoods in Oman.

The collection of primary data will involve interviews with professional experts in housing development, citizens who have already been granted residential land plots, and citizens who have applied for them. This study will also include observations gathered

from site visits to existing new residential neighbourhoods in the governorate of North Al-Batinah in Oman. This governorate was chosen because it is one of the most populace, and has numerous vacant residential land plots that have been neither distributed nor developed.

The findings from the secondary and primary data collection will be analysed and discussed in relation to the research questions. The outcome of the research will be a list of proposed policies, intended to improve the development process for new residential neighbourhoods in the Sultanate of Oman.

1.5 The significance of the research

The significance of the research relates to its focus on development procedures for new residential neighbourhoods in the Sultanate of Oman. The literature review will provide a conceptual framework for the study to illuminate the three main issues affecting the housing provision: housing policy system, land use design layout regulations, and the implementation of public facilities and services. This framework will be used to investigate and analyse the existing development process.

The analysis will assess the housing supply, the housing finance and their administration. Also will assess, the strategic spatial planning employed, the land use design standards used, relevant organisations coordination, and the financing and operation of public facilities and services. The analysis will define the obstacles facing the development process, and attempt to discover the reasons for the slow development of new residential neighbourhoods. It will also suggest solutions to improve the development process. The study will also provide quantitative data on urban land development practices, gathered from secondary data sources. These will be presented to reflect on and highlight existing levels of urban development.

One of the most significant elements of the research is the access it affords to the views of professional experts in fields related to housing provision. Interviews with experts will discuss the obstacles identified in the analysis, and aim to discover possible solutions. It is also the researcher's intention to involve citizens, by distributing a questionnaire to identify their requirements.

The findings from literature reviews, professionals' interviews, citizens' questionnaires and site visit observations are expected to further existing knowledge of housing provision. The rules of distribution and the financing of the citizens housing system will

also be reviewed. The research will help to improve land use design layout regulations, and determine better ways of coordinating, financing, and operating public facilities, and ensuring services provision, to new residential neighbourhoods.

Ultimately the aim is to provide data to help meet citizens' requirements, and to achieve sustainable economic, social and environmental development of these neighbourhoods. In addition, data about the housing policy system and the development process is anticipated to be helpful to those conducting future studies.

1.6 The thesis structure

The thesis is divided into seven chapters, including the introduction. This chapter has explained the research problem and background and the reasons for the study. It has identified the research aims, objectives and research questions, and detailed the scope, significance and structure of the research.

Chapter two offers a literature review, covering theories and approaches to assist in analysing the development process for new residential neighbourhoods in relation to the housing policy system, land use design layout regulations and the implementation of public facilities and services. It will consider definitions of new residential neighbourhoods, provided by several authors and present three main concepts for investigation and analysis. The review will also provide different approaches identified from the practices of developed countries, developing countries, and in the Gulf Cooperation Countries (GCCs). The chapter will focus on the first research objective, and is divided into eight sections. Section one, is the introduction. Section two, defines the meaning of residential neighbourhoods in terms of their history and character. Section three, reviews the issues related to developing new residential neighbourhoods. Section four, contains a review of the literature relating to the importance of suitable housing policy systems, including housing supply, housing finance and how they are administrated. Section five, reviews land use design layout regulations, such as the importance of providing spatial plans and land use design standards. Section six, exploring the ways of implementing public facilities and services through coordination, financing and partnership between public and private sectors. Section seven, presents the key conceptual framework of the review, which will be later, referred to in the analysis and discussion chapters. Finally, section eight, contains the chapter summary.

Chapter three describes and analyses the existing development process for residential neighbourhoods in the Sultanate of Oman. The chapter answers the second research

question and is divided into ten sections. It contains a review of the available reports related to the Oman housing policy system, land use design layout regulations, and ways of implementing public facilities and services. Section one, is the introduction. Section two presents Oman physical characteristics. Section three describes and analyses Oman's social context. Section four explains the country economy status, focuses on long-term and short-term strategic development plans applied. Section 5 shows the role of community participation in the development process of new residential neighbourhoods. Section six presents the citizens housing policy system. It reviews the housing supply, housing finance, and explains how they are administered. In section seven, the land use design layout regulations for new residential neighbourhoods are discussed. This discussion relates the types of strategic spatial plans used, and the standards employed in the land use designs. Section eight, covers the implementation of public facilities and services in relation to coordination, finance and operation. Section nine concludes the obstacles gathered that might face the development process for new residential neighbourhoods in practice. Finally, section ten presents the chapter summary.

Chapter four explains the research methods used to collect and analyse the data, and the survey techniques employed to present it. This chapter is divided into nine sections. Section one, is the introduction. Section two describes the research design methodology, and section three describes the issues related to the collection and processing of secondary data. In section four, the primary data collection survey techniques are presented. These techniques include structured and semi-structured interviews, questionnaires and site visit observations. This section also describes the pilot survey test, and describes the fieldwork and administration involved. Section five, describes the approach to data analysis. This includes a quantitative statistical data analysis and open qualitative information data analysis. Validity and reliability are dealt with in section six, and the resulting discussion is presented in section seven. Section eight contains ethical research considerations, and section nine summarises the chapter.

Chapter five presents the findings and analyses of the professional experts' structured and semi-structured interviews, the citizens' questionnaire and the observations made on the researcher's site visit to the new residential neighbourhoods selected. This chapter is divided into five sections. Section one, provides an overview. Section two, provides the survey findings and analyses of the housing policy system, while section three contains the data findings and analyses of the land use design layout regulations. Section four

presents the survey findings and analysis of the implementation of public facilities and services. Section five, is the chapter summary.

Chapter six contains the results discussion in relation to the research objectives and main questions presented in chapter one and the conceptual framework produced in chapter two. The discussion relates both the existing situation, and suggested improvements based on the findings from chapters 3 and 5. The chapter is divided into five sections. Section one, is an overview. Section two, discusses the housing policy system, including evaluations of the practices involved in the housing supply, housing finance, and the associated administrative work. Section three, contains a discussion of land use design layout regulations. It examines the importance of the implementation of strategic spatial plans and land use design standards. In section four, the implementation of public facilities and services is discussed, including a consideration of the types of public facilities and services provided, the importance of coordination, and financial and operational aspects. Section five is the chapter summary.

Chapter seven presents the conclusions based on the outcomes of the research, and delivers recommended policies for decision makers. These recommendations focus on how best to improve the development process for new residential neighbourhoods in the Sultanate of Oman. The chapter is divided into six sections. Section one, is the introduction. Section two, contains the main research findings derived from the theoretical, the empirical and the analytical stages of the study. Section three answers the first three main research questions as presented in chapter one. Section four presents the research recommendations, which includes answering the fourth main research question, as presented in chapter one. This includes suggesting factors to improve the development of new residential neighbourhoods in relation to a suitable citizens' housing system, to upgrade the land use design layout regulations, and to improve the implementation of public facilities and services. Section five, assesses the strengths and limitations of the research. Section six, suggests avenues for further study.

CHAPTER 2

REVIEW OF THE KNOWLEDGE AND UNDERSTANDING CONCERNING THE DEVELOPMENT PROCESS FOR NEW RESIDENTIAL NEIGHBOURHOODS

2.1 Introduction

This chapter will review and discuss the literature focussing on the development process for new residential neighbourhoods, including the housing policy system, the regulations in relation to the layout of land use design, and the implementation of public facilities and services plots. It also proposes a conceptual framework for the analysis of the process of development of new residential neighbourhoods in the Sultanate of Oman. This will assist in the identification of obstacles affecting the development process and offer suggestions for housing provision practices that would prove beneficial within the Omani context (see Objective 1 and Key Question 1 in Section 1.3 of Chapter 1).

The chapter comprises seven sections: Section 1 introduces the topic. Section 2 defines the connotations of residential neighbourhoods in relation to the urban planning environment, historical developments, and the characteristics of residential neighbourhoods. Section 3 raises issues regarding the importance of suitable housing policy system. Section 4 reviews the housing delivery by presenting details about housing supply, finance and administration in: (1) developed countries; (2) developing countries; and (3) Gulf Cooperation Countries (GCCs). Section 5 reviews land use design layout regulations, highlighting the importance of providing strategic spatial plans, along with sustainable urban housing, the location of new residential neighbourhoods and residential and public facilities (including types of services and standards of design layout). Section 6 reviews the implementation of planned plots for public facilities, including the importance of coordination among the related actors and the role of public and private sectors in finance and operation. Section 7 presents a conceptual framework for the research analysis, employed to evaluate the existing development process for new residential neighbourhoods located in the Sultanate of Oman (as discussed in detail in Chapter 3). Section 8 is the summary of this chapter.

2.2 Defining residential neighbourhoods

The review first gives the meaning of new residential neighbourhoods and discusses their historical development for different community groups within the context of the urban planning environment (see Question 1 in sub-question 1 in Section 1.3 in Chapter 1).

2.2.1 The historical approach to residential neighbourhoods

Oxford dictionary (2011) identifies 'neighbourhood' as a district, or a community, within a town or city, and the people who live there. In 1974, Arnold Whittick defined the neighbourhood unit from a spatial planning perspective as a planned part of the community, which comprises residences, districts, schools, shopping facilities, religious buildings, open spaces, and places offering services (Osborn & Whittick, 1978).

From a physical perspective, the neighbourhood is the basic unit of city planning, as being formulated by Clarence Perry in 1929 as a physical and social relationship between individuals. This description is still widely accepted by planners (Isaacs, 2007). Rohe (2009) is of the opinion that 'neighbourhood' refers to those areas of cities with distinguishing physical or social characteristics. At present time, neighbourhood is a subjective term referring to a few blocks of houses or buildings and a few hundred residents sharing basic facilities and services. It is an area in which people live, work, shop, and interact with their neighbours (Shekhar and Tripathi, 2015).

The history of the development of modern residential neighbourhoods began with a proposal for garden cities from Howard in 1898, who considered cities crowded and unpleasant, although he did acknowledge that urban planning was important because of employment opportunities. This led him to create a model for employment by designing human communities surrounded by agricultural activities. After that and based on an idea developed by Clarence Perry (1929), the centre of developments were elementary schools, parks and shopping areas, which would be readily accessible for pedestrians. His aim was to encourage citizen participation by promoting social interaction among residents. Clarence Stein and Henry Wright adopted similar ideas in 1929 during the planning of Radburn, the first garden city, in New Jersey, USA (Choguill, 2008).

The vision for residential neighbourhoods, as developed by Clarence Perry in 1929, established a plan for the creation of new cities, consisting of neighbourhood units, with social and civic buildings located in their centre, and houses and communities organised around them with the aim of fostering interaction and goodwill between neighbours. The

aim was to guarantee a distance of just half a mile between residences and services. The town itself would be located within safe commuting distance of a city, alongside a highway, on which major retail services could be located, to service a wider community than the new neighbourhood only (Rohe, 2009; Johnson, 2010). Mumford (1937, 1954) views the neighbourhood unit as a means of promoting a sense of cohesion between residents with a specific population size within each neighbourhood. It was established that the larger the community, the less the interaction between neighbours. Thus, proposals included the suggestion that increased sharing of common values and needs might lead to stronger bonds between residents (Fisher, 1984; Choguill, 2008; Rohe, 2009).

Recent planning studies have examined the neighbourhood unit, considering it as similar to the friendly communities found in previous eras. This viewpoint aims to confirm and recreate the congenial feeling found in these communities, in a contemporary setting, through the organisation of the town into neighbourhood units. Thus, by living in a compact community, children will develop a sense of security and belonging, while adults will integrate themselves with the social life of the community (Isaacs, 2007). It is important to note that, as the economy becomes more industrialised, the importance of the neighbourhood unit arguably increases as a tool to ensure the preservation of both individual security and the ability of all citizens to participate in community life (Saleh, 2004). In addition, it is important for planners to focus on good physical design, accommodating a wide range of social activities, thereby resulting in healthy communities, the empowering of residents, economic development and the achievement of environmental sustainability (Rohe, 2009).

2.2.2 Characteristics of residential neighbourhoods

A review of a number of relevant theories and of Choguill (2008) views reveals that, over time, the combination of the neighbourhood theories of Howard, Perry, Stein, Wright, Mumford and Fisher provided a rich basis for devising a set of criteria for the planning of sustainable neighbourhoods. The social and physical characteristics of planning are based on theories for new residential neighbourhoods. In order to develop liveable residential neighbourhoods, urban planning should address their economic, social and technical sustainability (Choguill, 2008; Almusawi and Yaqoop, 2006). Some authors suggest that a neighbourhood unit should be socially and environmentally sustainable in terms of the provision and location of residential accommodation, public facilities, commercial areas

and utility services and in terms of its living density (Bramley & Power, 2009; Dave, 2011).

A number of planners state that the components of a neighbourhood depend on family size and population. For example, Barton (2000) argues that there is a relationship between residential neighbourhood design and the number of households required to support the activities of local centres. This point of view assumes that each house should be within easy walking distance of local facilities. Such a neighbourhood would consist of a number of home-zone building blocks, developed by different agencies or house-builders, with larger areas for more affluent residents that contain high priced dwellings and larger gardens. The provision of neighbourhood facilities depends on the population and the standard of services required (Barton, 2000; Almusawi and Yaqoop, 2006).

To ensure sustainability, consideration of social, economic and environmental factors is crucial. It is important for planners to promote a transport system to provide easy access to all locations without affecting the privacy and safety of the residences. This can be achieved by allocating approximately 20% of the neighbourhood area for roads and access according to Alobidy and Aldory (2002). In relation to that Choguill (2008) argues that this should include both the reduction of public and private transport and infrastructure, along with high levels of density. He adds that a neighbourhood should have a diameter of not more than 1km so residents can walk to centrally located service areas and schools, thus reducing private car use, and ensuring that children are not required to walk more than 500m.

Choguill (2008) proposes various optimum dimensions to ensure social sustainability, notably that a residential area's size should be sufficiently small to allow communication between different groups in the local community so that they can meet each other easily.

Size is also important in terms of public facilities and services. Furthermore, he argues that it is important that land use design reflect economic and social characteristics, in order to achieve environmental sustainability. Neighbourhoods should be planned to integrate well with the wider community, through the implementation of land use design regulations, which facilitate local economic, environmental, and social sustainability (Alobidy and Aldory, 2002; Eben Saleh, 2004; Almusawi and Yaqoop, 2006; Isaacs, 2007; Choguill, 2008; Aldolimy, 2009).

More generally, it has been suggested by a number of authors that the population of a neighbourhood should be approximately 10,000 individuals housed in high and low rise

developments, and that they should include facilities such as primary schools, nurseries, health centres, entertainment areas, shopping areas, and places for prayer. Services should include electricity, water, sewers, waste collection and telephone services (Isaacs, 2007; Aldolimy, 2009; Alobidy and Aldory; 2002; Choguill, 2008). Others suggest that a neighbourhood should house from 2,500 to 25,000 persons with identified boundaries and community facilities to cater for the daily needs of residing families (Kallus & Law-Yone, 2000; Berk, 2005). Almusawi and Yaqoop (2006) state that a residential neighbourhood may comprise from 5,000 to 20,000 people, and the walking distance for schools can range from 400m to 800m, depending on the area and its density. The shape of the neighbourhood depends on the land available, but the most effective is a square or circular shape (or an approximation of) that allows for the main facilities and services to be located equidistant from all residential units. The residential neighbourhood can be surrounded by valleys, or small mountains, along with a transport network, and both commercial and industrial areas (Almusawi and Yaqoop, 2006).

Neighbourhood planning is still in the early stages of development. The most sustainable neighbourhoods are those that exhibit high levels of walkability, a sense of place, social cohesion and stability, and neighbourhood resilience amid changing economic and socio political conditions (Shekhar and Tripathi, 2015). The issues reviewed above regarding neighbourhood planning provide a basis for the process of developing new residential neighbourhoods in the Sultanate of Oman. The focus on residential neighbourhoods requires considering not only urban design issues but public facilities and the housing system within which neighbourhoods are embedded.

2.3 The importance of a suitable housing policy system

The first concept reviewed here concerns the importance of a housing policy system, defined in terms of housing supply, housing finance, and the relevant administration (see Question 1 in sub-question 2 in Section 1.3 Chapter 1).

From a wider viewpoint, housing provision can be defined as the relationship between the interests, strategies and actions of the agents involved in residential land development, and the socio-economic and political framework governing or structuring their decisions (e.g. land values, property and the environment). Houses are set within a neighbourhood context of environmental quality, local public service provision and a level (i.e. more or less) of community activity. Residents see housing issues not only in terms of comfort

and cost, but also in relation to quality of life and city contexts (Keivani and Werna, 2000; Hulse & Pinnegar, 2015; Maclennan and Bannister, 1995).

At present, one of the major obstacles facing the public sector in many developing countries is its ability to improve quality of life, provide effective urban services, and raise living standards while dealing with the severe challenges brought about by rapid urban growth (Zhao, Lü, & Woltjer, 2009; Alnsour, 2016).

A large number of studies agree that housing policy is essential to monitor housing provision over both the long and the short term, leading to a need to establish a policy as a basis for the provision of housing (Keivani & Werna, 2000). In relation to the process of implementing housing policy, Gallent (2007) highlights the point that the goal of a housing policy should be to provide sufficient homes, of satisfactory quality, in appropriate locations.

One of the primary issues when developing new residential neighbourhoods concerns the framework provided by the housing policy system. Huyck (1986) opines that the implementation of a national housing policy is valuable as it achieves a national understanding for all concerned actors in relation to the dimensions of the housing sector. In addition, Cullingworth and Caves (2009) note that it involves multi-dimensional planning (i.e. physical, economic, social and environmental) that could affect social status, capital and the availability of credit. In order to ensure a systematic housing policy implementation over a set period, Aribigbola (2008) argues that the government should develop housing policies that capture the diversity of the nation's cultural, financial, human and material strengths. Regarding the housing policy framework, Lawson et al. (2010) suggest that it should contain a clear public vision, along with goals and targets and cost-effective private finance mechanisms appropriate to local institutions. In addition, there is a potential need for a balance of subsidies related to demand and supply such as government support for housing costs for people on low income and the need for providers to be responsible for the delivery of efficient services while keeping costs under control. In general, housing policy should address both the allocation of sufficient land to meet private sector housing need, and mechanisms for enabling access to housing for low-income households.

The provision of a suitable housing policy system could be realised through coordinated efforts based on defined priorities established during housing sector development, along with an acceptance of the respective roles of the public and private sectors (Huyck, 1986;

Maclennan and Bannister, 1995; Keivani & Werna, 2000). Jiboye (2011) claims that the provision of housing policies and the commitment of stakeholders are key to ensuring a sustainable housing delivery system. Housing policy can take many forms, with the priority being to create a mechanism to facilitate the building of homes (Cullingworth and Caves, 2009). In relation to this issue, it is important to highlight the fact that any system chosen by a national government means a choice between two strategies, broadly labelled as: (1) the supply-side, and (2) the demand-side. The two primary instruments for pursuing a supply-side strategy in housing concern either construction programmes, in which the government builds its own housing for rent, or giving subsidies to private producers (both profit-making or non-profit organisations). The second major strategic option available to governments is to stimulate housing demand by subsidising housing consumers through, for example, tax concessions, thus providing low cost (or free) urban land and the provision of cheap credit. The policymaker is able to determine whether to give subsidies to builders, consumers, both, or neither (Shidlo, 1990).

However, poor implementation of housing policies can have substantial negative effects on the economy, including increasing the level and volatility of house prices, and preventing families from moving easily in order to follow employment opportunities. Some policies can play an important role in triggering a financial and economic crisis, as well as slowing down any recovery. Furthermore, housing policies have a direct bearing on overall economic performance and living standards, due to the way in which they influence the use of household savings, as well as residential and labour mobility, which is vital for reallocating workers to new jobs and geographical areas (OECD, 2011).

2.4 Housing delivery

The following reviews will focus on housing delivery including housing supply, housing finance, the administration of a housing policy system and the housing policy in the Arabian Gulf Cooperation Countries (GCCs).

2.4.1 Housing supply

Housing supply planning needs to draw on knowledge of housing aims and objectives, and should rely on theory, policy and practice for execution. The challenge is to provide the most effective regulations to produce new housing in relation to the existing number of households. The size of the housing stock and housing shortages provide a broad indication of new housing needs (Golland, 1998). In some countries, however, as stated by Lau (1992), high demand for housing is a result of a reduction in the size of

households, together with a significant increase in population. In order to ensure that new housing supply reacts sensitively to overall change, there is a need to integrate planning and land policy, to ensure that the individual supply sectors contribute to the total picture (Lai,N. & Wang, K., 1999: Golland, 1998).

The spatial planning system should also oversee housing demand fulfilment, to ensure that developers effectively implement policies when providing housing. Housing should be built in accordance with actual need, demographic projection and household formation statistics (Mohad, 2009 and Rameli, 2011). The design and enforcement of efficient land use regulations could render the supply of housing more responsive. The government may be able to encourage developers to initiate building, in some cases through subsidies and good planning. In addition, the state could also stimulate a new supply by providing information to developers to reduce risk, for example in urban regeneration neighbourhoods (Caplin and Leahy, 1998; OECD, 2011; Schuetz,, 2007). The government could also create an atmosphere in which the most effective course of action for developers would be to develop the land, by developing an understanding of the benefits and costs of holding land. Developers are free from the limitations on ownership of land established by the government, and will therefore examine economic conditions before making decisions in relation to housing supply. A reduction in permitted land supply might not reduce developers' building activities, as they will increase or decrease production, depending on land banks to maximise perceived profit (Neng Lai & Ko Wang, 1999).

The components of the housing industry (including building materials, construction, real estate and financial industries) generate a significant share of employment, frequently leading national economies out of recession. Moreover, the considerable experience of networks and the partnership between public and private institutions (including primary and secondary mortgage market institutions, the construction industry, title and land registries and real estate agencies), combine to develop and provide an advanced housing product (Ferguson and Navarrete, 2003; Lux, 2010). Well-designed taxes on vacant properties and undeveloped land in urban areas can encourage the appropriate use of such land for residential and business properties. For example, linking the assessment of the value of a property for tax purposes to the market value may increase incentives for developing vacant land, as market prices will also reflect its development potential (OECD, 2009).

In developed countries, Olsen (2003) argues that demand-side income-related housing subsidy programmes are generally more effective than public housing (and other supply-side programmes) in ensuring adequate standards of affordable housing. In the USA, for example, housing supply has taken many forms (e.g. public-private partnerships or neighbourhood non-profit bodies). In the case of low-income housing, the federal government has moved from direct supply, to an indirect promotion of production. Housing is available to citizens and supply and demand determines prices. Private enterprise provides accommodation for households according to an allocation process, as realised by free markets. On the demand side, households receive the amount and quality of housing related to their own choices, preferences, budgets and market prices. The government manages and plays an important role in determining housing supply and demand (Hird, Quigley and Wiseman, 1990; Cullingworth and Caves, 2009). Another example of a developed country is the UK, where the private sector and local authorities have historically dominated housing production. Private sector production has been, and remains, unsubsidised, with building programmes depending on fluctuations in the housing market, while formerly, local government took responsibility for building social housing. Housing associations now lead social housing investment programmes, using subsidies from central government; although currently, production emanates primarily from the private sector (Golland, 1998; Jansen and Woltjer, 2010).

By contrast, housing supply in developing countries divides into two types: (1) conventional; and (2) unconventional. Conventional housing targets primarily middle and higher income groups within the urban population. Their housing provision includes direct, and indirect, government built private sector housing, commercial formal private housing developments and joint venture schemes. Elsewhere, unconventional housing includes squatter settlements; informal land subdivisions; informal low-income rental housing; and self-built housing on rental land (Drakakis-Smith, 1981; Keivani and Werna, 2000). According to Ferguson and Navarrete (2003), in some developing countries, the delivery of housing can be via informal land developers, who set aside an area for occupation, leaving space for roads and community facilities, alongside individual sites for homes. Such settlements occur in Rio de Janeiro, Caracas and Montego Bay. In a different example, Feiler (1990) notes that a number of developments in Egypt have failed to attract inhabitants due to a lack of central planning, employment opportunities, incomplete basic services and social and cultural facilities. A further problem concerns the targeting of a low-income population with high cost housing units.

The provision of housing supply products depends directly on the finance mechanisms approved under housing system policy for both developers and consumers. The next sub-section discussed this in detail.

2.4.2 Housing finance

Housing finance distribution requires a broad institutional base, offering a wide range of products, small housing improvement loans, and links between financial institutions and developers (Ferguson and Smets, 2010). A wider perspective on housing finance is governed not by direct political or parliamentary decisions, but rather by private financial intermediaries, who offer a variety of long and short term financing mechanisms, dependant on market conditions (Hird, Quigley and Wiseman, 1990).

Housing finance, as stated by Warnock and Warnock (2008), divides into two components: firstly, provision of housing finance by a lender with access to large amounts of funding; secondly, the mobilisation of funds within the economy by lending institutions ensuring access to such funds. The facilitation of housing finance products can lead to an increase in the supply of rented or privately owned housing. Different income groups require differing methods of credit and styles of housing, depending on income levels. Governments can intervene in housing markets in order to enhance housing opportunities and ensure equitable access to housing. For example, Ferguson and Navarrete (2003) note that, in the USA, households buy a new (or existing) home supported by a highly sophisticated network of mortgage lenders, secondary market institutions, title companies, infrastructure providers, and developers, etc. In the case of low-income housing, the federal government is indirectly promoting production by subsidising other agencies, offering tax incentives and providing rent subsidies to tenants.

The housing finance in developed countries links to the provision of private housing, becoming a product directly linked to the economy on a market basis. In these countries, home ownership performs a critical economic and social function, with equity in homes representing the largest single asset of the middle-class, and forming the majority of a nation's wealth. Mortgages, primarily those for residences, therefore constitute a large part of the financial system (Ferguson and Navarrete, 2003).

The financing of housing in developing countries can be through both formal and informal instruments. Informal instruments include individual and group saving, aid, using one's own material, and small loans from individuals or groups. The expansion of housing finance requires the adoption of a number of actions, including: employing

micro-finance institutions; establishing a place for informal housing finance; combining serial small credits with other components of affordable housing value chains; partnerships between financial institutions and homebuilding material suppliers and developers, and improving funding (Ferguson and Smets, 2010).

It is important to highlight that government involvement in housing finance ultimately distorts the market by placing unnatural upward pressure on the price of homes, combined with downward pressure on mortgage yields (Randazzo, 2011). Meanwhile, unrestricted cash grants can lead to increases in demand for housing that is well above the levels of the grants available (Polinsky and Ellwood, 1979; Randazzo, 2011). Le Grand and Robinson (1984) state that general imperfections in the housing market exist as a result of a failure of the capital market; inaccurate information; external factors; and, an inelasticity of supply. Building a sustainable housing market arguably requires private sector financing without the influence of government subsidies that direct the supply and demand incentives from lenders or buyers. Such a market (coupled with a regulatory framework that removes barriers to mortgage lending and financial innovation) would assist the housing market to grow in a stable manner. The role of government is then to support a sustainable regulatory structure for the financing of mortgages by the private sector (Xue, 2012).

In relation to the housing cost, Benjamin et al. (1987) divide housing cost into four categories: (1) cost of land; (2) cost of infrastructure; (3) cost of public facilities; and (4) cost of building housing and municipal projects. The costs of infrastructure in several places are covered by the developers of new areas; existing property owners; the owners of specific areas; through special assessment districts and capital improvement programmes for the city; or through tax increment financing. The trend toward greater private participation in the financing of infrastructure is not restricted to the US. It is noted that in both the US and UK the costs of private land development are borne by private developers rather than by public agencies (Cullingworth and Caves, 2009).

The following sub-section will focus on the need for housing administration to manage the housing policy system in relation to housing supply and housing finance.

2.4.3 Housing supply, planning strategy and housing finance administration

Urban and housing growth management involves using policy instruments such as development plans, spatial plans, infrastructure investment, property taxes and development fees. Such policy tools can help coordinate the timing and location of urban

growth and development, with the aim of creating suitable urban centres (McGill, 1998; Porter, 1997; Richardson, 1993; Werna, 1998).

Two factors often affect the responsiveness of urban organisations with reference to policy tools. Firstly, the extent of their effectiveness in terms of available resources (i.e. human, financial and technological), autonomy, legal framework, relations with individuals and the private sector, coordination among local agencies, and utilising best practice (Alnsour, 2016; Alnsour & Meaton, 2014; Garba, 2004; McGill, 1998; Rakodi, 1991, 2001; Richardson, 1993; Wong et al., 2006). Secondly, the extent of their ability to understand urban growth itself. Urban growth as a concentration of population and construction over time does not occur in isolation. It is, rather, associated with driving forces (i.e. demographical and social-economic motives); actors (i.e. managers, developers, planners, householders, etc.); processes (i.e. the size of spatial expansion over time) and a pattern, which is the final output of growth that may be regular or irregular (Alnaour, 2016). These elements must be taken into account to understand urban growth and to produce effective policy tools. However, a further broad range of issues are directly related to growth management policies, including land use, landscaping, housing, transport, environment, services, quality of life and heritage planning. Therefore, growth management tools can facilitate and enhance the dynamics of sustainable development environmentally, economically, socially and culturally. It is important to note that, evaluating practical management applications, as a primary objective for most cities of the world is useful to manage urban growth effectively (Blair, 2001).

Some policy makers seek a mixed communities' policy in the same new residential neighbourhood, which comprises citizens of different income groups. Planners hope that this policy will improve residents' quality of life by leading to better living conditions due to a more diverse population. In addition, arguably, a social mix leads to social cohesion and greater economic stability, which ensures that more money will be spent in the area (Arthurson, 2002; Van Kempen & Bolt, 2009, 2012). On the other hand, most academics raise concerns over issues that arise in mixed neighbourhoods. The mixed community as a policy in isolation does not provide a genuine solution (Pissourios, 2014). The level of effectiveness of implemented housing policies can provide guidance and facilitate the process of planning control (Choguill, 2007).

In developed countries, individuals buy and sell houses on a market basis through the private sector. Central government typically supervises and controls planning by means of national planning guidelines, with its function being to provide regional and local

planning authorities with advisory guidelines which give them different scales of control. At the regional level, the state, or regional area authority, can be responsible for implementing planning policies, along with regional development plans, and general municipality plans. At the local level, the local planning authorities may draw up a detailed planning framework, including the provision of permits or zones for the development of new housing areas. Thus, the authorities designates permitted housing areas and predominantly the private sector develops them (Golland, 1998; Watson, 2009).

Developing countries have adopted various types of housing administration policies and the experience of policies and strategies for housing production systems reveals that governmental house building has had a very limited impact on the urban housing problem. Improvements can take place through the micro-financing of housing, the development of low-income land, and a direct subsidy programme to households, rather than a reliance on financial institutions or developers. A strategy of maximum, short-range problem-solving for housing citizens is required, within a context of long-range urban development planning and management. Developing countries can employ many solutions, based on the experiences of developed countries, as adapted to different circumstances (Huyck, 1986; Okpala, 1992; Ferguson and Navarrete, 2003; Pugh, 2010).

The World Bank has made a number of recommendations regarding housing improvement in developing countries, which affects the administration of both the demand and supply sides of housing provision. These include: developing property rights; mortgage finance; rationalising subsidies; improving residential infrastructure; reforming regulations in a way that benefits market activity, combined with alternative safe standards that allow increased flexibility in private market activity and housing provision. Recommendations also include: the re-organisation of the building industry through certain procedures such as the creation of greater competition; breaking monopolies; facilitating equal access of small firms to markets; removing constraints on the development and use of local building materials and construction methods; reducing trade barriers that apply to housing inputs and developing institutional frameworks for managing the housing sector (Keivani and Werna, 2000; Pugh, 2010).

For improvement of the delivery of housing in the cities of less developed countries, Sivam et al. (2001) have promoted an interesting approach. The study suggests the application of a table of alternatives for various stages (see Appendix A) in order to examine the range of housing delivery systems in the city. The method is to break down the housing delivery system into various stages in order to examine the issues

individually (i.e. planning, land assembly, implementation and disposal). In order to examine the delivery of housing systems, they presented these alternatives and interviewed a sample from different types of experts. The quantitative portion of these interviews revealed preferred housing elements could be developed to improve the housing system employed (Sivam et al., 2001).

It is worth to note that housing evaluation is relevant to housing developers as it provides the necessary information to improve the design and development of future housing projects (Preiser, 1989). In order to evaluate the performance of housing, a suitable indicator has to be developed. Among the various indicators developed, the concept of satisfaction has become the most widely used indicator to assess the performance of housing (Hong, 2012; Adriaanse, 2007; Kellekc & Berkoz, 2006; Paris & Kangari, 2005). As defined by Ogu (2002), housing satisfaction refers to the degree of contentment experienced by a household with reference to its current housing situation. Moreover, it is a non-economic and normative quality evaluation approach to assess the quality of housing units based on the actual housing situation and housing norms. Households are likely to express a high level of satisfaction with housing if the households' current housing situation meets the norms (Ibem, & Aduwo, 2013).

2.4.4 Housing policy in the Arabian Gulf Cooperation Countries (GCCs)

The Gulf Cooperation Countries (GCCs) are Saudi Arabia, Oman, Kuwait, United Arab Emirates, Qatar and Bahrain. Those countries with small areas, small populations and a high GDP, such as Qatar, UAE, Bahrain and Kuwait provide free or subsidised housing programs for people on low income. The housing public sector constructs the housing through the issuance of tenders to private sector construction companies. Other types of housing in these countries include interest free loans upon request for middle-income groups and constructions by private sector construction companies. Citizens are allocated new housing in these countries once all facilities and public services in place. The majority of new settlements are located in close proximity to urban areas where housing already exists. This is because the urban area is centralised, there are fewer housing applications than in Oman, and most of the citizens requiring housing are from middle or higher income groups. In Bahrain, housing loans are subject to subsidised interest, because Bahrain has a relatively lower GDP.

However, in those countries that cover large areas, high citizen population and many urban settlements around the country and low GDP in relation to the size of population,

such as Saudi Arabia and Oman, the citizens have to share housing costs. The new housing allocated in these countries was located away from local centres or other areas of housing, and most were without facilities and public services at the time of distribution, especially the open land plots. The reasons for this are economic factors, the large number of plots to be distributed, and the time taken for development. Completed houses are delivered free to low-income people with facilities and public services in place, and middle-income people are offered open land and housing loans and subsidised interest loans (see Table 2.1).

Table 2.1: Arabian Gulf Cooperation Countries (GCCs) areas, population and GDPs

Country	Area km^2	Citizens population 2010	GDP(M US $) 2011
Saudi Arabia	2250000	18707576	577595
Oman	309500	1957336	71888
Kuwait	17818	1038598	176667
UAE	83600	947000	360136
Qatar	11437	240000	173847
Bahrain	7414	527433	86108

Sources: Formal Saudi census (2010), Oman census (2010), Kuwait census (2010), Bahrain census (2010), Wikipedia, International monetary fund (2011)

The Gulf Cooperation Countries (GCCs) provide an alternative model for the supply of formal housing. In each country, the offer of finance for housing is made according to formal political strategies linked to governmental budgets. Each of these countries has a different approach to housing, as presented below.

In Oman, the Ministry of Housing grants each family member an open residential land plot without any facilities or public services. Citizens can also obtain government-subsidised housing loans from the Housing Bank, and low-income groups receive a completed house, or interest free housing loans (Ministry of Housing, 2008).

In Saudi Arabia, each household can apply for open land with services, and an interest free loan, or a completed house provided with utilities and public services (Ministry of Housing, 2013). The Ministry of Housing in Saudi Arabia is currently developing a new citizens' housing system (recently announced on their website), to provide houses to Saudi nationals aged 25 years and older, who do not own a house and have not previously received any type of housing offer. The new housing system will allocate either completed house units, or plots of land with services and a housing loan for use by the applicant (www.eskan.gov.sa).

In Kuwait, the housing system ensures that Kuwaiti families receive housing welfare according to the prioritisation of registered applications. These include land plots, house units and apartments. The 'owner' then pays off the price of the house or apartment in instalments, according to set conditions and rules. The Credit and Savings Bank provides interest-free loans to those eligible for housing welfare (Kuwait Housing Authority, 2011). In Qatar, the government grants citizens household residential land plots in serviced areas, along with an interest free housing loan to build, or buy a completed house. The citizen pays back half their housing loan in monthly instalments (Qatar Housing Authority, 2007). In the UAE, national households can apply for housing programmes, and the government offers interest free housing loans, grants, and completed houses, and free residential land plots with utilities and public services (UAE Housing Program, 2011).

In Bahrain, householders can apply for any type of housing programme, including for the provision of a subsidised completed house, for open land with utilities and public services, or a subsidised interest based housing loan (Ministry of Housing, 2004).

In summary, in the GCCs low income households are granted free completed houses or awarded grants to build their own homes. Middle and higher income households are granted either interest-free housing loans (i.e. Kuwait, Qatar and the United Arab Emirates), or subsidised interest housing loans (i.e. Saudi Arabia, Oman and Bahrain) (Gulf Cooperation Countries Council, 2013). From the information given above it is also evident that all the GCCs grant residential land plots to households, and provide public facilities and services before distribution, apart from Oman, which grants individual men or women residential land plots without public facilities and services.

To improve the housing system in the Gulf Cooperation Countries (GCCs) overall, a housing policy review linked with economic and community requirements is proposed, as recommended by the United Nations Report (2012) (i.e. involving local actors to develop the details when designating new housing areas and reducing the use of space and services). The General Secretariat of the GCCs encourages partnerships between relevant organisations and the private sector. The Secretariat is currently developing a housing project guide to rationalise housing projects in the GCCs in order to benefit from experience when improving the housing sector (Gulf Cooperation Countries Council, 2013).

2.4.5 Summary

Based on the review of related literature, and for the purposes of the current research, we conclude there is a need for a central policy framework to improve the provision of housing concerns a housing policy system shaped by planning. Concerned organisations in the public or private sectors would implement this by investigating and understanding the requirements of different housing consumers. This would then meet the needs of consumers and balance house production with demand, in order to supply, finance and manage housing based on economic, social and environmental sustainability. In Oman, several organisations are responsible for housing policy provision to citizens. Thus, there is a need to provide a new housing policy to unify those policies under a sole authority. This would help expedite the provision of services to meet housing needs and accelerate the development of new housing areas.

The success of the supply of housing in developed countries is a result of the fact that it relies primarily on the interaction of supply and demand. House products are primarily unsubsidised and created in response to market conditions, delivered by the private sector with all required facilities and services. Social housing is the only sector supplied by government. The experience of housing production systems reveals the fact that governments in developing countries have made a very limited impact on the housing supply, with housing being provided formally by government, or created informally by the consumers themselves, and there is little development by the private sector. In the GCCs, the housing supply is of the formal kind, being primarily provided by government. For the purpose of this research, this consists of vacant residential land plots, or a completed house, granted primarily to households and, under some conditions, to individuals. In Oman, there is a need to assess and review the housing policy system currently applied and to prioritise the type and volume of housing services required. As many countries offer services to families in serviced areas and apply taxes on open lands, relevant organisations can take advantage of them and it is important that any services provision be delivered in a manner commensurate with the privacy of Omani society.

Housing finance needs to be made available on both a short and long-term basis by private financial agencies. In developed countries, a relationship exists between the financing of housing and private housing provision on a market basis. In developing countries, such finance is sourced from both formal and informal instruments. In the GCCs, governments, through the award of a cost-free completed house, or loans that are either interest free, or subsidised, provide housing finance. Housing funding needs to be

redesigned to incorporate the existing multiplicity of subsides, and to allow space suited to a supply and demand system, and controlled by government legislation. This would then ensure citizens are responsibly housed, and support the real estate economy.

In developed countries, formal authorities grant permission for the development of new areas before housing is constructed by the private sector. It may be necessary to improve the housing administration in developing countries by learning from the housing administration of developed countries at the local level, as adapted to the individual circumstances of each country. Development of an institutional framework for the housing sector could achieve this. In the GCCs, housing is administered entirely by government organisations, based on government approved development plans. The supply originates from related government organisations, based on approved plans and budgets, while demand is based on approved housing applications, which take a considerable length of time to be completed. Drawing on the experience of developed countries the administration of housing could be improved through the involvement of local actors (including the private sector) with the ability to supply, and finance, the demand for housing through, perhaps, public-private partnerships. The liberalisation of some housing services from the grip of the government administration would help differentiate the services provided, create jobs and identify a variety of services, both from developers and specialised state-owned companies.

2.5 Employment of land use design layout regulations

This part of the review concerns the design and layout regulations for land use. This review concerns new residential neighbourhoods. The design and layout regulations for land use is considered in order to examine the importance of providing strategic spatial plans and the use of land use design standards for the development of new residential neighbourhoods (see Question 3 in sub-question 1 in section 1.3 Chapter 1).

Land use planning has been described as a process aimed at achieving the development improvement of cities by supporting individual and common goals of creating functional and liveable standards. This can be fulfilled by creating convenient, equitable, healthful, efficient, and attractive environments for present and future generations. It is important to note that, in order to make the process of urban management more effective, several factors should be considered, such as natural resources and citizens' income. In addition, attention needs to be given to the established regulations, public participation, the capacity of human, financial and technological resources (Alnsour, 2016).

An economic perspective, for example as set out by Cheshire and Sheppard (2001), sees land use planning as enabling a variety of local amenities while controlling the spatial structure of residential development. This control can reduce the cost of providing some local public goods and serve to isolate land uses, which are likely to generate costly external effects. In addition, arguably, a land use planning system should not consider only the needs of the powerful but should also weigh and balance the stakes of different groups within society. Moreover, land use planning should provide space for a variety of lifestyles. In order to achieve a variety of context-specific approaches formalisation of land rights is desirable, with greater attention to local politics and culture or state capacities. This requires flexibility, decentralisation and transparency (Deininger, 2003; Sjaastad and Cousins, 2008; Loehr, 2012).

The challenge in the development of new residential neighbourhoods concerns spatial planning, whose primary goal, is to promote societal progress towards equal and high living standards (Elbakidze, et el., 2014). From another point of view, Carmona et al. (2003) state that the primary aim of relevant organisations concerns the ability to create the correct number of houses, of the appropriate type, in an appropriate location, with a high price being paid by individuals, communities and the environment as a result of any failure to deliver suitable new housing areas.

The implementation of land-use regulations and the provision of public facilities and services alongside housing, is likely to improve the standard of housing and the development of new residential neighbourhoods (Hui et al., 2014; Barker, 2008). The layout of new residential developments requires careful consideration if it is to reflect, and be successfully integrated into, the local context. A vital step toward achieving this is to develop a thorough understanding of the context within which the new housing will sit, including the nature of the site, and the ways in which it relates to the surrounding area (Ault, 2002).

In order to gain a more detailed review of the employment of land use design layout regulations the following sub-sections focus on the importance of the existence of spatial plans as a basis for land use planning for the development of new residential neighbourhoods.

2.5.1 The importance of providing spatial plans

Spatial plans for new residential neighbourhoods are important; however, there is no agreement about what defines the content of a spatial plan. One view suggests spatial

planning focuses on promoting the future economic development of a jurisdiction (UNHABITAT, 2009. Healey (2004, p.46), identifies strategic spatial planning as "Self-conscious collective efforts to re-imagine a city, urban region or wider territory and to translate the result into priorities for area investment, conservation measures, strategic infrastructure investments and principles of land use regulation"

Several authors have discussed the advantages of strategic spatial planning. Early views by Bruton and Nicholson (1985) emphasise the advantages of a hierarchical arrangement in strategic planning, as this allows a comprehensive (but generalised) overview of issues to be established at a senior level in order to be further developed at lower levels into more detailed policies and implementation strategies. The strategy of spatial planning is very important. Glasson (2007) advocates that the strategy of spatial planning should cover the following: regional economies; transport markets; spatial labour markets; integrated land use and transport planning tools; household projections; housing allocations; and further sustainable assessments. Nevertheless, some disadvantages are associated with the lack of clear links between strategy and implementation, particularly between the higher levels of decision-making and the operational levels. Importantly, the adequacy of resources for the planning process, and its implementation, are a significant challenge, frequently undermining the validity of the process itself (Tsenkova, 2011; Baker, 2001).

In practice, strategic plans in relation to town planning are recognised internationally as tools to guide and locate development outcomes within a given jurisdiction, particularly local government. A significant consideration of strategic spatial plans concerns public infrastructure, including roads, water, electricity, waste removal, transport, and community facilities (Magni, 2013; Healey et al. 2003; Morphet, 2011). Studies indicate that strategic spatial planning is ideally positioned to address the economic, social and environmental dimensions of urban and regional change, through locally articulated strategies involving a wide range of partners in the formulation and realisation of policy (Healey et al., 1997; Albrechts, 2006).

To achieve this, He et al. (2011) propose the identification of functional areas of the city, and their links with nearby areas, in order to provide the necessary space, and create a residential environment that is healthy and comfortable for its residents, while providing entertainment areas and ensuring the provision of necessary public services. Strategic planning therefore requires the collective work of both economic and social specialists to achieve the desired goals (Alani, 2007).

There is agreement concerning what elements are entailed in the process of spatial planning. Sartorio (2005) identifies some of these elements as being: the definition of priorities and subsequent outcomes; the drafting of the strategic plan displayed geographically; the implementation of the plan; and the monitoring of the outcomes of the plan. At the same time, a large number of studies have suggested that spatial planning should form a process of collaborative learning between a multiplicity of actors and stakeholders. This means that key concepts should focus on open dialogue, collaboration, and consensus building, rather than on the technical process aimed exclusively at producing spatial plans (Granados Cabezas, 1995; Albrechts, 2004). Methodologies for undertaking such processes vary, including: visionary instrumentalism and an objective setting; public participation; the use of a package of instruments or concepts; overcoming specific economic, social or environmental barriers; or a combination of such methodologies (Ko et al., 2000).

Therefore, strategic spatial plans can be used as a guide and foundation when considering and controlling housing development. The next sub-section offers a general overview of the planning approach to land use standards and its limitation in designing new residential neighbourhoods.

2.5.2 Land use standards

It is necessary for the land use design layout of new residential neighbourhoods to be appropriate for all groups within the community and to meet the daily needs of residents. This review covers the land use design layout standards in developing new residential neighbourhoods. In a top-down urban planning approach, where the community was excluded and the government made decisions in isolation, planning standards can be interpreted as having optimum value. In this case, most standards were set by experts who determined how many libraries, police offices, bus stops, etc. the planned community would need. However, a problem with such standards is that they are often generic and arbitrary, possibly reflecting the views of organisations with vested interests. By contrast, bottom-up approaches of urban planning that involve the community in the planning process and apply participatory approaches may also be used to obtain norms for urban facilities according to community expectations (Taleai, Sliuzas and Flacke, 2014).

Generally, standards should be part of any planning theory and practice, from regional to local planning. This includes the classification of urban uses, the clarification of the components of the survey of the planned area, the construction of alternative scenarios

and the methods for their assessment, and the construction of the planning zones. In relation to that, development ability can be influenced by urban conditions, including land use plans or zoning (Lydon et al., 2011; Nemeth and Langhorst, 2014; Pissourios, 2014).

The role of the government is to make rules and regulations, preparing development plans and planning standard and guidelines. On the other hand, weaknesses in the control and approval development stages could result in property overhang and oversupply (Hui, 2014; Yakob et al., 2015; Bramley, 2003; Aluko, 2011). Missing or poor local planning processes can cause delays and management problems. Consequently, developers have to deal with problems of uncertainty in the rules and procedures by changing rules, regulations and requirements that could lead to non-compliance practices (Yakob et el., 2015; Chua & Deguchi, 2008).

The following part of this sub-section concerns the review of design standards to be considered for land use in patterns of new residential neighbourhoods, in relation to housing design for urban sustainability, site allocation and design layout of different land use plots.

Residential neighbourhood design for urban sustainability

Urban sustainability, as defined by Adinyira et al. (2007), is a set of urban conditions characterised by issues including: inter-generational equity; protection of the natural environment; minimal use of non-renewable resources; economic vitality and diversity; community self-reliance; individual wellbeing; and the satisfaction of basic human needs.

Alternatively, according to Jenks and Dempsey (2005), the foundation of urban sustainability relates to a high quality of life for the entire community, within a socio-economic framework, while minimising the impact of the city on the local and global environment. The Omani Economic Association (OEA) views sustainable development as a social process that is conscious, continuous, and based on a national and independent resolve towards attaining structural transformation. This, then, creates political, social and economic changes that permit the subsequent growth of social capabilities and a continuous improvement in living standards (OEA, 2013 & AlShueili, 2015). It is important to note that increasing public concern over the set of negative impacts of urban sprawl, including the loss of open land resources, longer commutes, increased greenhouse gas emissions, and lower levels of physical activity, led to policy efforts that seek to change the course of urban growth patterns (Calthorpe & Fulton, 2001).

There are social issues that arise, such as dissolved local social ties due to the increasing distances between work and home. In addition, higher levels of employment among women has reduced their dependence on the immediate neighbourhood for social ties, while increased car ownership and the mobility that it affords has enabled people to develop and maintain social contacts outside neighbourhoods. Moreover, developments in electronic communications have reduced face-to-face contact by opening up the possibility of indirect means of communication (Henning & Lieberg, 1996; Kuo et al., 1998; Guest & Wierzbicki, 1999). In this context, Chanan (2004) suggests that social ties and relationships among neighbours can grow through repeated visual contact and short-duration outdoor conversations and greetings.

Williams (2010) raises further concerns about the political will to overcome the current state of reluctance by some developers to use sustainable technologies. Siegel and Loftness (2008) argue that the sustainable design process needs to be related to land use and design at the regional level, and to address issues such as community design and mobility; site ecology and water use; locally-based energy generation and performance and security. In other words, the design of land use needs to focus on reducing the impact of pollution in the long term, particularly in relation to energy consumption and transport. In a similar vein, according to Stead (2000), sustainability requires the centralisation of services and facilities and high development density in order to achieve environmental, social and economic dimensions of a compact city. Following this logic, the urban designer needs to prepare the site for a number of residences, close to transport systems and sufficient means of producing renewable energy, water catchments and landscaped areas. In addition, the site needs to be safe from the impact of climate change, including the impact of flooding on infrastructural services. Moreover, plans for an urban area need to support the lifestyle and activities of all social groups. In economic terms, it needs to develop local investment with a low environmental impact (see Appendix B). Furthermore, as land resources are non-renewable, it is important to maintain the balance between the supply and demand of land to achieve its sustainable use (Wheeler, 1998; Rydin, 2010; Hana and Zhang, 2014). Lower density urban forms also tend to be associated with lower accessibility to local services. For these reasons, the urbanism movement supports the design of high density, mixed use, walk able, public transport based neighbourhoods to achieve social cohesion and environmental sustainability (Rubenstein, 1987; NU, 2002).

Locations of new residential neighbourhoods

The successful development of new residential neighbourhoods depends on their location. Carmona et al. (2003) state that new housing should be located in the vicinity of places of employment and transport connections in order to address issues of urban sustainability and the environment. Unsuitable homes placed in inappropriate locations can increase existing social problems, or give rise to further issues (Gallent, 2007).

Allocating housing areas in an enclosed community can create a strong bond between residents, as this increases their support for one another, but can also create social exclusion for those outside these boundaries (Ross, 2004). From another point of view, Costley (2006) argues that differences in socioeconomic characteristics can promote distrust between groups and a decline in overall social connection within communities, with such segregation being detrimental to the achievement of a socially sustainable society.

It is more efficient to create housing within existing urban areas, because it compacts the area of land to be used and focuses urban growth within areas that have already been developed. This increased housing density, along with the recycling of land and buildings for new housing, leads to a reduction in the need for new places to construct houses, thus improving environmental sustainability (Stead, 2000; Carmona et al., 2003; Almusawi and Yaqoop, 2006; Gallent and Tewdwr-Jones, 2007). Furthermore, the distribution of the land use area should also consider other planning requirements such as provision of open space, community facilities and utilities to create a better living environment to people living within the housing areas (Hassan et al., 2010). Moreover, housing provision can be affected by location in relation to employment, goods and materials. For low income housing, according to Gallent & Tewdwr-Jones (2007), it is important to consider their location within local communities when allocating sites. The most fundamental feature of a sustainable urban neighbourhood is its location, that is the fact that it is located within towns and cities. Such a neighbourhood does not only create attractive new buildings and housing units in existing urban areas, but entire neighbourhoods that are more pedestrian oriented, vibrant, diverse and ecological (Shekhar and Tripathi, 2015).

Design layout of land use plots

Good urban design is required to provide a range of house and public facilities and services plots, which provide for the housing needs of a cross section of the population and facilitate a broad mixture of households of different ages and economic status. Policy

makers need to know how the urban condition should be planned for and managed so that it comprises adequate spatial urban patterns of land use, infrastructure, social facilities, and environmental services, suitable to serve the quality of life of urban dwellers (UN-Habitat, 2013). Multiple planning participants, administrative bodies and other public and private groups involved in the urban planning process can have diverging criteria and preferences on spatial qualities and therefore scale-related (policy) interests should be made explicit. This is the reason why in the analysis of the interactions it is necessary to take into account multiple indicators and sets of solutions in order to strengthen or weaken cross scale linkages (Hayeka et el. 2015; Cash et al., 2006).

The new urbanism, and sustainability oriented design in general, is once again to include this variety of land uses within communities, typically within neighbourhood centres or along the main street. If jobs, housing, shops, and recreational facilities are closer together, then people will need to drive less and the neighbourhood will be more vibrant and liveable (Shekhar and Tripathi, 2015). Resident areas also have different demands for facilities and services. A single household may require schooling at preschool, primary and secondary levels, or health services for primary care or for high-cost inpatient care at a general or specialised hospital (Taleai, Sliuzas and Flacke, 2014). Moreover, planning authorities need to develop strategies for creating centres comprising shops, a mix of community based services, and high density housing. This can reduce travel distances, and also connect such areas to their own historical character and lifestyle (Stead, 2000; Gallent, 2007; Rydin, 2010; Hull, 2011). Some consider the ideal city as being one that provides housing at affordable costs, employment, equipment and services, where the public transportation system is within easy reach. On the other hand, elected officials should promote quality housing, enhancing efficient energy and energy alternatives. To be sustainable, the city of the future must be able to recycle and reuse buildings. A major difficulty faced by Mayors is knowing how to attract qualified people to reach a critical mass which is able to contribute to urban development. The location of houses is also an important factor contributing to housing satisfaction among households. A favourable location generally includes accessibility to a central business district and local amenities such as shopping centres, schools and transportation centres (Noronha Vaz, Leeuwen, & Nijkamp, 2013).

The overall land use distribution in these neighbourhoods shows the subdivision of the land into various uses including residential use. It is persistently suggested that neighbourhood level community facilities such as shops that cater for daily shopping

needs, the primary school, mosque/church, health clinic and children play area should be provided at walking distance (Alshuwaikhat, 1999; Nadeem et al., 2013). Residential units are dependent upon other public and private land uses such as schools, shops, and parks to give the required service (Taleai, Sliuzas and Flacke, 2014).

Austin (2004) notes that residential land plots take a number of different forms, ranging from large, to small lots of less than 450m^2. Arendt (2004) states that differences in the sizes of lots can be related to the goal of maximising the number of land plots in relation to local regulations. The design of land plots for public facilities and services include places for prayer, commercial areas, education, health, entertainment facilities, roads, electricity, water, sewers, waste collections and telephone networks. These types of services should be distributed according to population density, facilitating the servicing of all residential age groups. Places of prayer are provided in each district within easy walking distance of the majority of the population. As previously stated, high quality physical infrastructure compensates for increased density (Gwyther, 2005; Aldolimy, 2009).

Creating a better connection between human and natural environments is a central challenge of sustainable development; neighbourhood planning should seek to create a variety of open spaces and natural areas. Creating a range of attractive open space needs to become an integral part of neighbourhood planning (Shekhar and Tripathi, 2015).

2.5.3 Summary

The provision of spatial plans and the employment of land use standards at different levels, are important for land use design, and for the regulation of the layout of new residential neighbourhoods. Residential and work areas are influenced by the quality of design layouts in relation to spatial planning, including key components, access to them, and the ways in which they relate to one another. The objective of creating land use design layouts is to create multiple high quality ways of living, working and relaxing, through optimum and sustainable land use within urban areas. This involves a number of related actors from different levels within the urban planning sector, each with defined responsibilities, to ensure areas are permeable, clearly defined, and safe. This is achieved through the employment of experienced design teams, and includes planners, architects, landscape architects, urban designers, transport planners, and road engineers.

Such actions can improve the quality of housing services, and assist local authorities seeking to produce detailed plans. The employment of land use design layout standards is

important as part of the development process for new residential neighbourhoods, and should be compiled from approvals based on their familiarity to the development organisations concerned. These standards aim to assist urban planners by guaranteeing the provision of all the required utilities and services for plots, while also ensuring that residential neighbourhoods are more sustainable. Prior to the distribution of new neighbourhoods, the design of residential houses and vacant land plots and public facilities and services is essential to meet the requirements of residents' needs.

The planning authorities in Oman need to develop strategic spatial plans to ensure their designs meet the requirements of residents and are workable, both economically and socially, while also being environmentally sustainable. From the outset, new residential neighbourhoods should be designed to support the daily life of all groups of residents. Strategic spatial plans should be undertaken by an agency, to control and steer action plans, and to cover all aspects of planning for economic, social, and environmental factors, including master plans and more detailed plans. Strategic spatial plans can be prepared at three different levels: (1) national, (2) regional, and (3) local. National planning seeks to guide the human potential to achieve goals, while regional planning achieves the optimal distribution of economic and social activities, establishing the resources available for development to accord with national planning objectives. Local planning focuses on implementing detailed urban, economic and social plans, while also developing specific areas. Master plans can identify trends in the growth of a city, and provide rules and procedures for its creation (e.g. maps of areas of land use, standards, and financial support). City design should primarily take the form of a plan for mixed usage, including the provision of public transport, attractive housing, a high quality living environment, and the provision of all public facilities and services.

The standards employed to oversee land use planning in Oman need to be implemented from the perspective of strategic spatial plans, to include all urban and rural planning regulations and policies. Local authorities should work on detailed planning, including the new policies and regulations approved at national level, especially when implementing new towns and links with local governmental policies, establishing the resources available and jobs required. These can be developed and permitted by local actors, such as relevant formal organisations and Municipal Councils, and executed through the private sector, including local developers and other investors. The design phase should consider the different needs of the local economy and special social activities, and develop several types and sizes of housing units to meet the needs of

different income groups living in the area. In addition, steps should be taken to ensure the centralisation of facilities and services to establish the urban sustainability of residential neighbourhood design, and to address environmental concerns. This includes providing compact housing units, accessible via a local public transport system, and with the option to utilise renewable energy.

The standards set for allocating sites for new residential neighbourhoods in Oman, should account for factors such as residents' needs to be in close proximity to their places of work, and to have access to appropriate transport links. A site is often more appropriate when it is an extension of a pre-existing housing area, as this reduces the cost of public facilities and services provision, and makes the site more sustainable, while focussing growth within urban areas. However, if this is not possible, new residential neighbourhoods should be created in new areas where it is possible to ensure all necessary public facilities and services, and to guarantee that the location is will not be subjected to the impacts of climate change, such as flooding, soil erosion, and noise.

It is important to establish a town-planning law in Oman to describe the detailed technical standards for land use planning plots and utilities that need to be applied by relevant organisations and developers. The approved standards in Oman for residential land plots differ for completed houses and vacant plots (current Oman planning practice will be explained in Chapter 3). Completed houses are formed of detached and semi-detached housing units, while vacant residential land plots can be $600m^2$, $500m^2$, or $400m^2$. Public facilities for each residential neighbourhood need to be in a central position relative to housing, and accessible on foot, and relevant public services should be provided to serve all land use plots.

2.6 The implementation of planned public facilities and services

The third concept studied in this review concerns the implementation of public facilities and services for the planned plots. From an urban planning perspective, quality of life can be defined as a composite of a subjective component, namely the individual's well-being, and an objective component, which is the state of the urban condition (Marans, 2014). Nowadays, people have higher expectations of their living environment; lifestyles and leisure behaviour are changing rapidly and most people want better services and greater choice. However, people may postulate needs that may be neither affordable nor efficient (Taleai, Sliuzas and Flacke, 2014).

In relation to this, Wheeler (1998) is of the opinion that the relevant authorities should serve residents with the required facilities and services, while Keivani & Werna (2000) argue that the provision of infrastructure for an increased number of housing units has the potential to reduce their cost. Real world market fails on occasion to allocate resources efficiently; these failures are usually associated with adverse externalities such as non-provision or inadequate provision of public facilities and services (Adams, 2008; Klosterman, 2003).

In order to deliver quality housing, it is important to meet safety and health requirements and provide comprehensive services for all ages and social groups. This can be fulfilled through coordination among a number of different concerned organisations, along with public and private sector partnerships (Carmona et al., 2003). This section reviews the importance of public facilities and services, including the coordination of relevant organisations and the role of government and private sector in their finance and operation (see Question 4 in sub-question 1 in section 1.3 in Chapter 1).

2.6.1 The importance of coordination of related actors

The development of new residential neighbourhoods requires coordination between the actors involved in providing public facilities and services to ensure sustainability. Local governments can respond to the needs of local populations to deliver national objectives at the local level, extending the democratic mandate and responsibility downwards, including the provision of services for citizens, the management of their resources, and plans that reduce uncertainty in relation to the future. The administration and decision-making of these various activities may fail, due to a lack of response and coordination in addressing the required services, and a failure to deliver the values expected by the public sector in relation to the economy, efficiency and effectiveness. This can be resolved by establishing a committee made up of the representatives of the relevant actors, which is then responsible for the overall coordination of policy and resource management (Wilson and Game, 1994; Elcock, 1994).

Hambleton et al. (1996) notes that decentralisation leads to increased community governance, if undertaken within local government. This can be done using two different approaches: firstly, through local geographical operations; and secondly, through increased authority for decision-making being awarded to a lower level of management or governance. New forms of community governance originate from a number of sources, involving a partnership of public, private and community sectors, which can then bid for

funding. This reflects the nature of representative community capacity, with some communities being able to build self-regulation systems for the management of their areas (Stewart, 2000).

Popular participation provides the driving force for a collective commitment to citizen centric urban housing development processes. Popular participation has emerged as a major force in policy making and political philosophy and motivates citizens to undertake sacrifices and expend their social energies for urban development. It is also a fundamental right of a citizen to participate fully and effectively in decision-making that affects their lifestyle. It is encompasses promotion and building of partnerships among public and private sector agencies and community organisations to avoid duplication of activities and conserve resources of time, money and equipment needed for urban housing development. It can make land administration transparent, enhance citizens' confidence in land administration and promote private sector investment in urban housing development (Akingbade at el. 2012; Gbadegesin & Ayileka, 2000; Adedeji et al., 1997; Amba, 2010; Williamson, Enemark, Wallace, & Rajabifard, 2010).

The ability to involve citizens in delivering services (including the housing sector) is dependent on the existing political system. Healey (2010) notes that in any planning, the issue concerns the fulfilment of the public's needs. Arnstein (1968) has provided an earlier view of citizen participation, defining it as a form of power that enables the citizen (then excluded from the political and economic process) to be included in the future. This strategy enables citizens to share in information gathering, setting goals and policies and allocating tax resources, programme operation and benefits; i.e. the means by which they can ensure significant social reforms, enabling them to share in the benefits of societal improvements. The involvement of local communities through participation in the preparation of detailed master plans may offer opportunities for municipal boards and politicians to make locally appropriate decisions about development, particularly when short-term action is required (Alnaour, 2016).

Partnership processes include planning for the contribution of each partner; i.e. identifying what is expected from them and the ways in which they will benefit. The process must involve decision-making processes that respect the needs of all partners, awarding priority to the community, setting specific goals and evaluating their success. The establishment of a partnership improves networking, joint thinking and vision making, along with access to shared information, funding, and a more focused and effective service delivery (New Church and Co., 1999). Carmona et al. (2003) note that

experience has established the benefits of coordination between the public sector, the private sector and the community in delivering successful new housing developments.

2.6.2 The role of public and private sectors in finance and operation

The partnership between the government and private sector forms an important contribution to the process of financing and operating new residential neighbourhoods. One aspect of partnership concerns privatisation, which reduces the role of government in meeting the needs of citizens by increasing the role of the private sector, particularly in relation to the social goals of urban development, with the private sector focusing on increasing the returns on its investments. This allows cooperation of both sectors and the combining of the goals to strengthen the process of development (Billand, 1993). Public private partnerships are defined as partnerships made to improve and facilitate actions within the public sector. They are a mix of traditional public earning and full private endowments. The government's role is to decide what is required and the private partners' role is to design the assets and service aspects (Corner, 2006). Graham and Marvin (1996) state that privatisation can contribute to the provision of infrastructure, including transport, water, energy and telecommunications. Abdulaziz and Kassim (2010) note that a further form of privatisation is a public-private partnership for the delivery of homes, where the partnership's success is dependent upon the information shared between the parties. Generally, governments need to find solutions to the increasing demand for housing and municipal services and to address the environmental impact, adding that this may lead government in some places in developing countries to start involving the private sector in investing in housing finance (Billand, 1993).

In order for such undertakings to be successful, regulations on who can build what and where need to be linked to the provision of infrastructure; thus, it is important to determine the levels of government investment in relation to that of landowners and developers (Healey, 2010). In this case, infrastructure finance for the cost of development can be obtained from different sources, including: developers of new areas; existing property owners; owners of specific areas; special assessment districts; the issue of bonds; capital improvement programmes for the city; incremental taxation (Cullingworth & Caves (2009). They also recognise the need for a development agreement (i.e. a formal statement between a developer and local government), to respect the ways in which the land will be used and developed.

Forms of public-private partnership at the local level may take many forms. Under the design, build and finance type of contract the contractor agrees to design, build and finance the scheme. This type of contract is widely used in the housing sector, where the contractor recovers the costs through the sale of the private element of the scheme (Espigares and Ballesta, 2013). Such contracts generally include provision for facilities such as water, wastewater sector, waste management, housing, local services, urban development and alternative energy and require private financing initiatives for efficient investments. The regulation framing the specific format of public private partnerships emerges from national regulations, but for efficient multilevel governance, cooperation between local authorities and national governments is crucial. Public private partnerships should bring benefits to small and medium towns although they do face risks such as unexpected higher costs due to lower competition and less flexibility in the market place (Noronha and Vaz, 2015).

2.6.3 Summary

The review of the implementation of planned public facilities and services plots has established that new residential neighbourhoods need to be served with all the requirements of daily living for every social group. The creation of new residential neighbourhoods requires effective coordination between relevant organisations and the inclusion of the private sector as a partner in both financing and operations.

Related actors need to coordinate the public facilities and services and manage the needs and resources available with members drawn from relevant public, private and community sectors. They need to be aware of new housing plans and available types of housing programmes. This could be coordinated by a steering committee, thus avoiding any failure to meet the needs of the population during the development of new residential neighbourhoods. In Oman, several communities meet for infrastructural implementation. However, the municipal council might be considered the right committee, as it can coordinate the implementation of public facilities and services between relevant organisations, once it has been represented by public, private and local community members.

The financing and operation of public facilities and services should be carried out in cooperation with the private sector and community actors. The privatisation of the development of new residential neighbourhoods (including plots) can be a solution to the increase in the demand for housing. This might be useful for Oman, as the relevant

government authorities need to monitor supply and demand and ensure investment from the private sector, in order to strengthen the development process.

2.7 The conceptual framework

The proposed conceptual framework guiding the research investigation, analysis and discussion was formed by the theories and approaches concerning the development process for new residential neighbourhoods as reviewed above. The three issues under discussion (i.e. housing policy system; land use design and layout regulations; and the implementation of public facilities and services) have been broken down into a number of main indicators and sub-main indicators. Each of these indicators will be applied to the existing development processes for new residential neighbourhoods in Oman, and subsequently compared with each of the concepts presented in the summary sub-sections 2.4.5, 2.5.3 and 2.6.3. Thus, the implementation of new residential neighbourhoods in Oman will be evaluated, and a number of suggestions to improve the development process will be made.

Table 2.2: The conceptual framework for the housing policy system in Oman

Concepts	Main indicator		Sub-main indicator
Housing policy system	Supply	Government or private sector (on a supply and demand basis).	Vacant residential land plots granted to households and individuals.
			Complete house granted to households.
	Finance	Government or private sector (banks and finance agencies).	Interest-free housing loans.
			Subsidised interest housing loans.
			Market interest housing loans.
	Administration	Government only, or a government and private partnership.	Supplied and financed by government.
			Supplied by government and self-financed.
			Supplied by government and financed by the private sector.
			Supplied and financed by the private sector.

Table 2.2 presents a summary of the main and sub indicators collected to study housing supply requirements for granting a residential land plot and a completed house. This is to establish whether these should be granted to households or individuals. The housing finance covers the grants available to households offered by banks, agents or developers as interest free loans, subsidised loans or market interest loans. The housing supply and housing finance administration can be managed by government, by private developers, or by the public and private sectors in partnership.

Table 2.3: The conceptual framework for the land use design layout regulations in Oman

Concepts	Main indicator		Sub-main indicator
Land use design layout regulations	Spatial plans	National development plans	Long-term development plans, short-term development plans, and yearly action development plans.
		National spatial plans	National, regional and local spatial plans, with a detailed master plan.
	Land use standards	Housing design for urban sustainability	Mixed-land use design, centralised facilities and services, public transport supporting daily life and low environmental impact.
		Site allocation	Near to existing urban or expansion areas, workplaces and transport connections, and safe from the results of climate change.
		Design layout of land use plots	Complete houses (i.e. one unit, twin units, multi units and apartments). Vacant plots (i.e. 600m^2, 500m^2 and 400m^2). Facilities (i.e. places for prayer, commercial centres, schools, nurseries, health centres, police and fire stations, parks, post offices, petrol stations, and cemeteries). Services (i.e. roads, electricity, water, sewers, mobile telephones, and waste collection and telephone lines).

Table 2.3 presents the conceptual framework for land use design and layout regulations. The study reviews a number of strategic spatial plans and land use design standards. Spatial planning involves a number of indicators at: (1) national level (e.g. strategic development plans, or national strategic spatial plans); (2) local level (e.g. a development action plan or local master plans). The main indicators of the land use design standards include the site allocation and the design of sustainable urban housing; residential land plots and public facilities and services plots.

Table 2.4 demonstrates the concept in relation to the implementation of public facilities and services plots. The framework includes coordination and methods of financing and operation. Coordination can be undertaken by a committee, which includes representatives from the relevant organisations or actors, or Council actors. The finance and operation of the public facilities and services can be undertaken by related government organisations, by government investment companies or private developers.

Table 2.4: The conceptual framework for the implementation of the planned public facilities and services in Oman

Concepts	Main indicator	Sub-main indicator
Implementation of planned public facilities and services.	Coordination of related actors	Relevant organisation actors.
		Council actors.
	Finance and operation of public and private sectors.	Government organisations.
		Government and private investment companies.
		Private developers.

The conceptual framework and summary of the three concepts given in this chapter have helped identify the obstacles that face the existing development process for Oman's new residential neighbourhoods and come up with suggestions for improved practices. The issues identified, which are presented in Chapter 3, form the basis of the data collection exercise for this thesis and provide the basis of the discussion in Chapter 6.

2.8 Chapter summary

This chapter provided an overview of the theories related to the development process of new residential neighbourhoods and their history and characteristics. Three main issues were focused upon: (1) the housing policy system; (2) the land use design layout regulations; and (3) the implementation of public facilities and services for planned plots.

The chapter provided a review of housing policy systems in relation to housing supply, finance and administration. The review identified the importance of integrating land use regulation in strategic spatial plans and land use standards and the important role of public-private partnerships in providing public facilities and services. All these aspects are considered highly relevant to the subject of the current research. A conceptual framework (see Tables 2.2, 2.3 and 2.4) has been created based on the concepts reviewed above to guide the analysis and discussion that address the main questions posed by this research. The analysis leads to suggestions to improve the development process for new residential neighbourhoods in Oman.

CHAPTER 3

EXISTING DEVELOPMENT PROCESS FOR NEW RESIDENTIAL NEIGHBOURHOODS IN THE SULTANATE OF OMAN

3.1 Introduction

This chapter provides an overview of Oman's physical characteristics, social context, economic status and the participation of the community in urban development. It also reviews the existing development process for new residential neighbourhoods in the Sultanate of Oman relative to the housing policy system applied, land use design layout regulations employed, and the implementation of public facilities and services on planned plots (see objective 2, key question 2 and sub-questions in section 1.3 in Chapter 1).

This chapter has ten sections as follows. Section 2 presents Oman's physical characteristics. Section 3 describes and analyses Oman's social context. Section 4 explains the country's economy status, focusing on the long and short term strategic development plans in place. Section 5 details the role of community participation in the development process for new residential neighbourhoods. Section 6 presents the housing policy system, including the housing supply process, housing finance and their administered work. Section 7 explains the land use design layout regulations, detailing existing strategic spatial plans and land use design standards. Section 8 shows how public facilities and services are implemented, in terms of coordination, finance and operation. Section 9 concludes the work, explaining the potential practical obstacles inhibiting the development process for new residential neighbourhoods. Section 10 summarises the chapter.

3.2 Physical characteristics

The Sultanate of Oman is in a strategic location, occupying the South-eastern corner of the Arabian Peninsula between the Latitudes 16" 40' and 26" 20' North and Longitudes 51" 50' and 59" 40' East. Its total area of 309,500 sq km encompasses plains, valleys and mountains. The plain area covers 3% of the country, overlooking the Oman Sea and the Arabian Sea, the mountainous area covers 15%, and the remaining 82% of the country is covered in sand and desert with no urban areas. The coastline is 3,165 km long, bordering the Arabian Gulf, the Oman Sea, the Arabian Sea and the Indian Ocean. The climate is mostly hot and humid in the summer and moderate throughout the year. The country is divided into 11 governorates (Muscat, Dofar, Albatinah North, Albatinah South,

Alsharqiyah North, Alsharqiyah South, Aldhakilyah, Aldhahira, Alwusta, Musandam and AlBuraimi) and its capital is Muscat (see Oman map in appendix C) (Ministry of Information, 2011).

3.3 Social context

The total number of people living in Oman in June 2016 was 4.4 million, of these, 55% (2.4 million) are Omani citizens. The remainder of the resident population are expatriate workers (www.ncsi.gov.om). The majority of the population live in Muscat, which is also the area of highest population density; the next most inhabited areas are Al-Batinah's North and South Governorates. This population distribution is attributable to the concentration of economic activities in these places (Ministry of National Economy, 2011).

Omanis are proud of their heritage and history, which dates back thousands of years. Most of their values come from their Islamic and Arabic roots. Cultural norms are learned from previous generations, with few changes resulting from modernisation Although Omanis share a common culture, they gain income from diverse sectors, including trade, agriculture, fishing, social welfare allowances, and government and private sector jobs. The majority of Omanis hope to own a residential land plot close to their birthplace or work to that they can build their own home, and are familiar with modern technology and employ it in their daily lives. Omanis also maintain good relations with other societies and are willing to accept people from other cultures around the world (Ministry of Information, 2010).

Most Omanis start their family life in their parents' homes. They then use their own income to manage their living expenses, and some take bank loans to build or buy houses and cars, get married, and for other requirements. They prefer to build and live near their families in separate housing units, and prefer not to live in flats for long periods. This is partly for cultural reasons, and partly because Omani families typically have a large number of members in their households. However, they do not mind working away from their birthplace. It is usual for Omanis to travel using private cars, as there is a lack of public transport in the country. In general, Omanis prefer to take jobs in the government sector, although they might consider the private sector if the level of the salary and additional incentives is appealing (Ministry of Information, 2010).

Omani households usually consist of at least a husband (Omani), wife and their children, or any two related (Omani) citizens. The number of households was 260,120 according to

the last census of 2010 (Ministry of National Economy 2010). Table 3.1 shows that in 2003 there were 225564 households, a figure that had increased by 34556 by the end of 2010. In the same period, the number of people in each household fell from 9 to 7.5, as a result of a drop in the birth rate. Some of these households include families where 2 or 3 generations cohabit. The table also shows the number of housing units built during this period increased by 120062. This reflects the implementation of development plans to improve the living standards of the Omani people, corresponding with the development of the country.

Table 3.1: Omani population, household and housing units

Activity / Year	Total citizen population	Number of households	Average household size	Number of dwellings	Occupied dwellings	Unoccupied dwellings
2003	1,781,558	225,564	9.0	430,996	338,946	92,050
2010	1,957,336	260,120	7.5	551,058	396,421	154,637
Difference	+ 175,778	+ 34,556	- 1.5	+120,062	+ 57,475	+ 62,587

Source: Ministry of National Economy, 2010.

Although growth is positive, the increase in population will create demand for additional suitable dwelling units for households or individuals, as suggested in the existing housing policy. In addition, the relatively higher figure of occupied dwellings compared to number of households in dwellings results from rental properties by individual Omanis who are working somewhere else, and not yet housed and expatriates. Notably, many currently unoccupied residences were flats constructed by developers for expatriates, for whom there is now falling market demand. There are also older uninhabited houses, which are deemed to be no longer suitable for habitation. Householders have abandoned these in favour of newer ones. The remainder of the unoccupied properties listed include ‘seasonal houses’, only used at certain times of year, additional homes owned by a single household in a different place, and houses under construction. From these figures, we can determine that the increase in population is creating a demand for the provision of different types of housing services, including completed housing units, and new residential land plots in serviced areas provided supported by suitable housing and finance programs.

3.4 Economic status

Before 1970, there was no real economic activity in Oman, as the country had no external source of revenue, and its people survived by subsistence trade, fishing, farming and grazing. The glorious days of the empire had long gone, and the government of the state was unsettled, as the current Sultan's father had faced many challenges including insurgencies and civil wars that had ripped the country apart. In 1970, Oman was an isolated, undeveloped country, with a population approaching one million, and only three primary schools, one hospital, and just a few kilometres of paved roads (Ministry of information, 2010).

After 1970, when Sultan Qaboos took over leadership of the country, it became a battlefield as the government struggled to counter insurgencies in Dhofar, until 1976. The country did however, have precious oil money that prevented the country's development from stalling. Soon after the war, the government shifted its focus towards exploration of the country's natural resources. To achieve this end, it produced two long-term strategic national urban development plans. The first one covered the period from 1975 to 1995. The second long-term development plan covered the period from 1996 until 2020, and introduced a vision for the development of the Oman economy by 2020. These plans provided a targeted framework to apply to achieve development through the implementation of shorter five-year strategic development plans and yearly sub-plans, delivering more precise aims concerning levels of attainment that should be reached in the development of the living standards of Omanis, and which included developing the housing sector (Ministry of National Economy, 2009). The Omani economy has experienced strong growth over the past ten years. Its gross domestic product (GDP) increased in 2010 to 22778.6 Million Omani Rials compared to 2000, which was 7430.7 Million Omani Rials. The main resource supporting Oman's economic development and associated activities is oil (Ministry of National Economy, 2011).

3.4.1 The first long-term development plan (1975 – 1995)

The country's Development Council drew up the first long-term development strategy plan. It consisted of four short-term development plans. The main task of this plan was to transform the country into a modern economy, by developing new sources of income and improving the living conditions of all its citizens. The plan aimed to address several issues. The first was to determine how best to develop new resources for national income based initially on oil income. The second was to invest to support the private sector, and income generating projects in industry, domestic trade, mining, agriculture, and fisheries.

The third was to develop human resources, to include the population actively in the development of the national economy. The fourth aim was to develop an efficient state administration, and the final aim was to support the development of housing and public facilities and services. This included renewing old and building new housing centres, water resources and completing essential infrastructure projects in all regions of the Sultanate (Ministry of National Economy, 2010).

As mentioned above, this first long-term development plan (1975 – 1995) was subdivided into four short-term five-year development plans. These short-term plans aimed to establish the necessary government infrastructure projects, including housing, main roads, schools, hospitals, and other public facilities and services, especially in regional centres (Ministry of National Economy, 2010).

Table 3.2: Provision of housing in the first long-term development plan (1975 – 1995)

Housing services	Residential land plots granted	Free completed houses units	Interest-free housing loans
Number	210,340	11,823	1,608
Total	223,771		

Source: Adapted from the Ministry of Housing, 2010

As shown in Table 3.2 the majority of citizens were granted new residential land plots, representing 94% of the housing supplied. This meant that the government provided citizens with land plots so that they could build their own houses using personal funds or subsidised housing loans. An interest free housing loan was offered, and uptake represented 0.7% of allocated housing services, with just 1608 loans being distributed initially; meanwhile, the number of completed housing units constructed and distributed to citizens was 11,823 units, representing 5.3% of the housing supplied (Ministry of Housing, 2010).

3.4.2 The second long-term development plan (1996 – 2020)

As mentioned above, and explained in the 2010 report produced by the Ministry of National Economy, the second long-term development plan presented Oman's economic vision for 2020. This plan addressed the challenge of future development, the details of policy formulating and the aim of shifting national economic development to a higher level of growth for a further 25 years.

The main policy areas detailed in the vision for 2020 covered the development of human resources and upgrading Omani's skills to ensure high efficiency to develop a new technology sector and align domestic and global conditions to offer more job choices in the public and private sectors. This will help to establish a competitive private sector to share its visions, strategies and policies with the government, including the development of a housing and real estate sector. The plan also aims to oversee provisions for appropriate conditions to ensure economic diversification and maximum use of both natural resources and the country's geo-strategic location, which can be utilised to find jobs and new living areas. In general, the objective of the plan is to enhance standards of living and disperse development throughout the country, following the completion of the necessary public facilities and services.

The five-year plans, within the second main long-term strategic plan, provide more details in relation to the aims and levels of economic growth predicted, and the expected development in the living conditions of citizens. These short-term development plans are divided into yearly implemented polices and plans for which budgets are provided, and which include defined administrative activities for the housing sector (distribution of land plots, providing low income housing units and free or subsidised interest housing loans) and the development of public facilities and services (Ministry of National Economy, 2010).

Table 3.3: Provision of housing in the second long-term development plan (1996 – 2010)

Housing services	Residential land plots granted	Free completed housing units	Interest-free housing loans
Number	370,200	9,253	2,644
Total	382,097		

Source: adapted from Ministry of housing, 2011

According to the available data concerning the direct development of citizens' housing in the period from 1996 to 2010, which covers 3 five-year plans, as mentioned in Table 3.3, the number of granted residential land plots increased, because of the increase in the number of citizens eligible for the new housing system. The number of free completed housing units and interest-free and subsidised housing loans also increased because of higher budgets provided for them. The residential land plots granted represent 97% of the housing services budget and free complete housing units represent 2.4%, while interest-free housing loans represent 0.6% (Ministry of Housing, 2011).

3.5 The role of community participation in urban development

People in the community are involved in the decision-making about the development of new residential neighbourhoods. Their elected representatives in the Alshorra Council, the Municipal Council, the State Council, and specific local committees, also represent them. In addition, they can raise opinions through participation in the media and through social communication facilities.

Three councils were responsible for creating the second strategic development plan and are responsible for the yearly action plans. The Council of Ministers represents the government, while the Alshorra Council represents local people, and the State Council consists of skilled and knowledgeable experts chosen from different areas of specialism. The related ministries then implement the plans and policies, suggested in liaison with their local offices and the central ministry office, after revision and approval by senior management. These decisions are then submitted to the Council of Ministers for study and approval, and the Council of Ministers sends a complete yearly development plan from all concerned sectors to the Alshorra and State consuls for approval. Following the consuls' comments and approval, the annual plan is distributed by the ministries to their directorate generals and to the regional offices in the governorates for implementation within approved budgets (Ministry of Legal Affairs, 2011).

Each governorate has a municipal council, established by Royal Decree 116/2011. The structure of a municipal council comprises four main different groups of members: the governor who chairs the council; the council consisting of directors general of all related land use planning and municipal development government organisations; two to six elected members for each city within the governorate area, depending on size of the local population; and two private sector members from the local community, appointed by the governor. The responsibility of the municipal council is to work within the stated and approved general policies and strategic development plans. It advises and gives suggestions to organisations related to sustainable urban development implementation. The council studies the municipal systems and services to ensure better use of resources for development. It suggests methods and places for constructing infrastructure projects in the governorate, within set budgets and according to the development plans. It works to reduce the impact on the environment to create less pollution and to advise on waste recycling projects with concerned organisations. The council is also involved in suggesting the best methods to deliver new housing areas, construct roads, manage taxi operations and public transport, and raise or cancel taxation. It suggests the type of

assistance required by locals if any type of climate change affects them. The council works to resolve any citizen's objections related to services and leases held by them. It also assists disabled people by providing them with certain established requirements (Ministry of Legal Affairs, 2011).

The local committee, chaired by the Waly, consists of appointed members from socially active groups and related government organisations, like those concerned with land, the municipality, health and other social and local committees at the city level. The Waly relays members' suggestions about land use planning and development to the Governor's office. There is daily feedback about services suggested by the local communities, which arise from discussions between people and local development organisations from the government or private sectors. In addition, a Media window is open through the Radio OFMR and OTV programs for community members to evaluate the services offered. This enables them to comments on the type and quality of services offered with representatives from both the public and private sectors. Telecommunications facilities, such as text messages, emails, internet chatting and mobiles have become tools for direct feedback, and these are used by local people to evaluate services and suggest popular needs for decision makers in related organisations.

3.6 The housing policy system applied

The housing policy system has developed between 1970 and 2008, in response to both long- and short-term development plans (see sub-sections 3.1.4 and 3.1.5). The housing policy system proposed by the Ministry of housing and approved by the Ministerial Council is executed by royal decrees. All old housing policy systems grant individual males and divorced or mutual female residential land plots upon which to build a house. The land plots are then subject to planning by individuals, who may make subdivisions or build new housing. Low income households are offered completed free houses. The option for a subsidised housing loan from Housing Bank is available to either male or female householders. In 2008, the Ministry of Housing created a new housing policy system and law (LREL and SHL). This involved allocating housing land plots by implementing proposals for new residential neighbourhoods; individual male and females could apply for these plots. Again, this plan included offering completed houses and interest-free housing loans to low-income households. The Housing Bank was responsible for granting subsidised interest housing loans, while other commercial banks offer interest-bearing housing loans. Relevant government organisations carried out all housing administration work, and private sector firms applied to construct the houses on a tender

basis (Ministry of Housing, 1980, 1984 and 2008). The following sub-sections evaluate the situation in terms of housing supply, housing finance and administration in detail.

3.6.1 Housing supply

Since the modernisation of Oman began in 1970, the government (applying both old and new housing policy systems) has supplied and granted numerous residential land plots for different uses across the country's urban and rural areas, on an ownership basis.

The Ministry of Housing grants individuals a residential land plot of 600 m^2 in formal new subdivided neighbourhood housing areas. By the end of 2008, the housing policy system for residential land plot distribution was amended to allow male and female individuals aged 23 years and over to apply for land equally. The residential land plots are in newly planned areas and the majority of the plots have no public facilities or basic services. People pay for the land plots depending on site locations and salaries, while low-income individuals receive plots free of charge. Some private landowners have requested permission to alter their lands as per the master plan and then sell them. Other owners have developed the sites according to the land use permits given; either constructing residential or commercial buildings or by providing services and then selling or renting them. The Ministry of Housing provides low-cost houses for low-income families by conducting socio-economic studies to determine the need for free of charge completed houses or interest-free housing loan to build or buy complete houses from the market. The Ministry builds complex housing units and gives them free of charge to low income families in rural areas (Ministry of Housing, 2008).

Table 3.4: Residential land plots granted in last two five-year development plans

Five-year development plan	Residential land plots granted
2001 – 2005	117,967
2006 – 2010	182,157
Total 2001 – 2010	300,124

Source: Ministry of National Economy, 2011; Ministry of Housing, 2002; Ministry of Housing, 2008

The Ministry of Housing Annual Report, 2010, shows the total number of applicants requesting residential land plots but not awarded them had reached 416,661 by the end of 2010. This figure is largely due to the change in housing policy in 2008, which allowed individual women to apply for residential land plots in the same way as men. In addition, the Ministry supplied and granted over 300,000 residential land plots in the period from

2001 to 2010, covering all the residential land plot applications registered before changing the housing policy in 2008. The majority of these were located outside existing urban areas, and did not include facilities or public services. This extensive award of a huge number of residential land plots embodied the change taking place in Oman's housing sector. Table 3.4 summarises the number of residential lands plots distributed to citizens over the term of most recent two five-year development plans, from 2001 – 2010 (for more detail see section 3.9).

However, as shown in Table 3.5, low income housing applications for programmes for free houses and interest free loans registered by the end of 2010 (for funding by the relevant authorities) numbered 24,735.

Table 3.5: Low income housing applications registered up to 2010

Low income housing applications	Low income housing	
	Free completed houses units	Interest-free housing loans
Number	12,268	12,467
Total	24,735	

Source: Ministry of Housing, 2011

During the period covered by the last two five year development plans (from 2001 to 2010), the Ministry of Housing granted 10097 low cost houses, 5741 complex housing units free of charge, and 2513 completed house units free of charge, and 1843 interest free housing loans Table 3.6 (Ministry of Housing, 2011).

Table 3.6: Low income houses granted in last two five-year development plans

Five-year development plan	Low income housing		
	Free complex houses units	Free completed houses units	Interest-free housing loans
2001 – 2005	3,018	971	701
2006 – 2010	2,723	1,542	1,142
Total 2001 – 2010	5,741	2,513	1,843
Grand total	10,097		

Source: Ministry of Housing, 2011

3.6.2 Housing finance

Housing finance is available from different sources. Most people choose to finance their house building through the Housing Bank on government subsidy-based programmes where interest rates vary depending on family income.

Table 3.7: Government subsidised interest loans through Housing Bank

Government subsidised system through Housing Bank	Interest rate	Income /R.O
	1%	Less than 400
	2%	400 – 700
	3%	701 - 1000
	4%	More than 1000

Source: Housing Bank, 2013

As shown in Table 3.7, families can receive government subsidised interest housing loans only once. The interest rate differs, from 1% for families with an income of less than RO/400 to 4% for families with an income of more than RO/1000 (Housing Bank, 2013).

Table 3.8: Oman Housing Bank approved housing loans

Housing bank loans	2008		2009		2010	
	Number	Value RO	Number	Value RO	Number	Value RO
	607	14,000,000	798	22,000,000	1046	28,900,000

Source: Ministry of National Economy, 2011

As shown in Table 3.8, the number of Housing bank loans was increased from 607 in 2008 to 1046 in 2010, after the reduction in interest rates loans.

Table 3.9: Summary of low income housing system

Low income housing types	Household	Maximum cost R.O
Free house in urban or rural, old or new housing areas with basic public services.	Maximum income RO/300 monthly	25,000
Interest-free social house with basic public services, especially in rural areas; cost is repaid in instalments.	Maximum income RO/400 monthly	25,000
Interest-free loan for house in urban or rural, old or new housing areas.	Maximum income RO/600 monthly	30,000

Source: Ministry of Housing, 2008.

Families whose income is less than RO/300 receive a free house, built by the government at a cost of a maximum of RO/25000, which is paid to developers to offer a house for the family. Families whose incomes range from RO/301 to 600 receive an interest free loan of a maximum RO/30000, to buy or build a house, see Table 3.8. The low income housing system summarised in Table 3.9 (Ministry of Housing, 2008).

Some citizens who are ineligible for subsidised loans receive funding through commercial banks on a commercial basis, where the interest rate is 5%. Some employees in government and private organisations also receive interest free housing loans to build houses. Many other citizens build their houses through self-funding or a family cooperative fund, based on multiple individuals' housing allowances (Ministry of Housing, 2008).

3.6.3 Housing supply and housing finance administration

The Ministry of Housing is responsible for the housing policy system, land use planning, land administration and the registration system, which includes construction planning, land distribution and real estate registration. All land administration and registration departments rely on land and real estate laws and regulations, issued by Royal Decrees. The Ministry of Housing shares responsibility for studies and plans for urban development strategies and land affairs with the Higher Planning Council Office at national and regional levels. The Ministry of Housing also prepares detailed maps of planned areas, awarding ownership of land, based on various uses, to citizens, as well as overseeing services, land ownership applications not registered under the land law, recording all actions and rights in the real estate registry system, and conducting socio-economic studies to determine the need for social housing and loans for people on limited incomes and implementing these studies (Ministry of Housing, 2008).

The Ministry of Housing grants the land plots, and the Housing Bank offers subsidised housing loans. Completed houses and interest free housing loans are offered directly to low income groups by the Ministry of Housing. Private sector companies construct citizens' houses in direct agreement with the owner, and in line with the rules and regulations. The owner first receives a residential land plot, then funding, and then prepares the house design and mode of supervision through an engineering consultant's office, before getting a permit from the municipality and signing a building agreement with a construction company. At the construction stage, the owner applies for the available basic services, and is then connected upon receipt of the building completion

certificate from the municipality (Supreme Committee for Town Planning, 2000 and Ministry of Housing, 2008).

3.7 Employment of land use design layout regulations

The employment of land use design regulations in new residential neighbourhoods in Oman has been explored in relation to the strategic special plan and the land use standards used, and the results are reported here.

The strategic urban and development planning falls under the responsibility of the Higher Planning Council, which was established by combining the Ministry of National Economy and the Supreme Committee of Town Planning to create a single organisation in May 2012. It is responsible for proposing the development strategy and future trends for the national economy, which include five-year development plans, investments plans, and related urban planning studies. The Ministry of Housing both designed and distributed the plan for new residential neighbourhoods in Oman. The Ministry has to apply urban planning standards approved by the Supreme Committee of Town Planning in 2000. The delivery of the new residential neighbourhoods is achieved by granting residential vacant land plots to citizens, and extending authorisation for the provision of public facilities and services to plots to relevant organisations (Ministry of Housing, 2008).

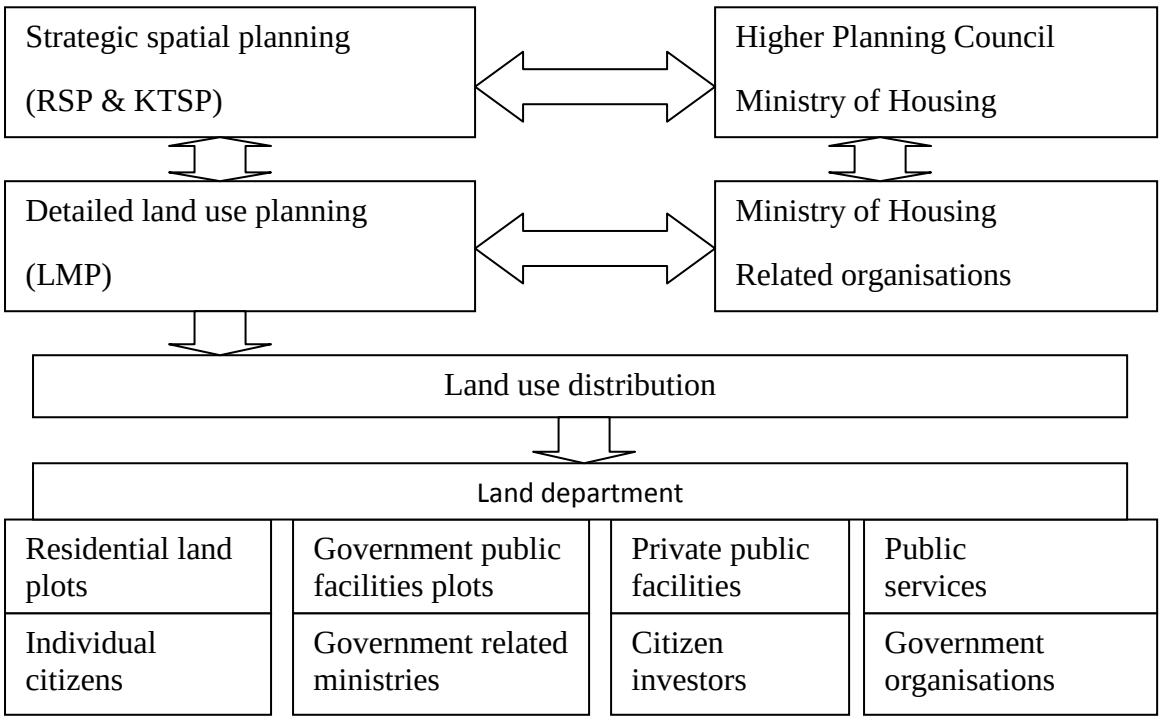

Figure 3.1: The land use design process of new residential neighbourhoods

As shown in Figure 3.1, the Higher Planning Council cooperates with the Ministry of Housing in strategic spatial urban planning. The Ministry of Housing is mainly responsible for detailed land use design, and the implementation of the housing policy system. It is responsible for land use design layout at the local level, and approves changes in land use and advises related organisations on the details of town planning (Supreme Committee for Town Planning, 2000).

The land use design of new residential neighbourhoods is carried out in coordination with other related organisations at the approval level; e.g. Ministry of Municipalities and Water Resources, Ministry of Transport and Communications, Ministry of Environment and Climate Affairs, Electricity and Water Authority, Royal Police and the Ministry of Interior. In addition, the requirements of other ministries, such as Education, Health, Social Affairs and Religious Affairs, are considered when planning land use. After approval of the design for a new housing area, the Ministry of Housing distributes residential land plots through land department to citizens and to public facilities and services relevant organisations (Supreme Committee for Town Planning, 2000 and Ministry of Housing, 2008).

3.7.1 The spatial plans used

A previous study by Ministry of Development concluded by proposing three alternatives: a regional development growth centre strategy, a rural development strategy and a key town strategy. The key town strategy was chosen as the preferred strategy for regions throughout the country. The spatial strategic plans are listed as follows:

Regional structure plan (RSP): in the period (1980 – 1990). The Ministry of Housing carried out many regional structural studies all over the country, most of which relied on existing data and estimations of population growth and distribution. Because of the acceleration in development, these suggested master plans are now out of date, and consequently, are no long used (Supreme Committee for Town Planning, 2009).

Key town strategy plan (KTSP): The key town strategy was chosen as the preferred strategy for regions throughout the country. It promotes development within designated towns and secondary centres, and encourages the economic integration of urban and rural areas. The regional centres are intended as growth centres, and to provide central services for whole the region. There will be a large number of secondary centres within the region, and these will provide secondary services. The local centres include other settlements in the region, which can provide basic services for local citizens. Government organisations

are now using these strategic plans as a reference in conjunction with Ministry of Housing master plans, and so are developing a national spatial strategy (Supreme Committee for Town Planning, 2009).

Local master plan (LMP): most regional town planning offices of the Ministry of Housing produce local master plans and land use maps. These maps become structural plans, which are used to help other organisations and planners to implement new housing areas (Supreme Committee for Town Planning, 2009).

Oman National Spatial Strategy (ONSS): since 2008, the government, through the auspices of the Higher Planning Council, has worked toward implementing the Oman national spatial strategic Plan. However, the project is moving slowly and has been diverted several times. Alterations have been made to realise the potential of available resources, facilitate the spread of jobs opportunities, support well-educated and trained manpower, and offer a safe and healthy environment and a better quality lifestyle (Supreme Committee for Town Planning, 2009).

In relation to the strategic spatial plans and the development of new residential neighbourhoods, the Ministry of Housing is now working on the basis of a key town strategy, five year development plan aims, yearly action plan budgets and the local master plan for land use planning areas. It has implemented a number of new residential neighbourhoods, and distributed them to citizens and other concerned organisations. The public facilities and service plots have also been developed by concerned organisations, based on their strategic development plans.

3.7.2 The application of land use design standards

The employment of land use design standards in new residential neighbourhoods was explored relative to sustainable housing design, location and residential and public facilities and the design of service plots. The Ministry of Housing aimed to apply urban standards that had been previously approved by The Supreme Committee of Town Planning in 2000. Town planners apply these standards and their own skills to the design of new residential neighbourhoods (Ministry of Housing, 2009).

An important issue affecting general sustainable urban development in Oman has been the fact that the transportation of goods and people principally depends on the use of private cars. There are some public and private transport facilities, and private taxis and limited domestic flights and marine ferry travel options. Al-ismaily and Probert (1998)

conducted a study of Omani transport, and recommended addressing specific issues to resolve the concerns associated with sustainable urban development. These included removing energy subsidies, encouraging the use of public transport, managing traffic, and developing the regions to employ people in local towns. They added that the Ministry of Housing could influence how energy is used by adapting spatial and structural planning policy to reduce the need to travel. Due to the lack of efficient public transport, long distances between housing and existing facilities, the low price of petrol, and the range of choice for differently priced cars, people find the easiest solution is to buy a car for everyone in the family to resolve their daily travel needs. Al-badi et al. (2009) argue that there should also incentives offered to encourage people to generate energy in their homes using solar or wind energy.

It is a further important recommendation that the Electricity and Water Authority should discourage the use of electric water heaters and issue regulations favouring the use of solar water heaters. Moreover, the municipality can apply land plot construction regulations by providing a setback around buildings and opening up the spaces within plots to allow the circulation of air and daylight. It also encourages people to install roof and wall insulation and double-glazing to reduce heat and conserve the energy used for air-conditioning (Ministry of Regional Municipalities and Water Resources, 2011).

The regional town planning departments in each governorate in Oman determine the location of new residential neighbourhoods. They assign new housing areas, usually on flat open government land or as extensions to old housing areas where possible, or in new areas that are not necessarily close to jobs, main roads or services (Ministry of Housing, 2009).

The Ministry of Housing plans public facilities and services plots and distributes them to relevant organisations for development. They are divided into three types: government public facilities, private public facilities and public services. Public government facilities are distributed to relevant government organisations including roads, prayer places, schools, health centre, parks and playgrounds, police and civil station, social hall, post office and graveyard. Private public facilities are designed and distributed to private owners who open shops, nurseries and petrol stations. The public facilities designed and provided by relevant government organisations are electricity, water, telephone lines, mobile, sewage and waste collection. The development of all types of public facilities and services depends on the relevant authorities' priorities for both the planning and

budgeting for new residential neighbourhoods (Supreme Committee of Town Planning, 2000 and Ministry of Housing, 2008).

The approved standards for the Supreme Committee of Town Planning in Oman (2000) designate three choices of housing unit types for citizens by plot area, and are as follows: (1) 600m^2 within a 40% built-up area; (2) 500m^2 within a 45% built-up area; and (3) 400 m^2 within a 50% built-up area. As previously discussed, this gives citizens some choices when determining the most effective use of plots. The standards cover the plot areas required for public facilities and services provided by the government, and facilities that are provided by the private sector as shown in Tables 3.10, 3.11 and 2.12 for use in the new residential neighbourhoods.

Table 3.10: Standard of public facilities provided by relevant government organisations

Prayer areas	Schools	Health centre	Parks	Playground	Police & fire station	Social hall
800 m^2	12000 m^2	4000 m^2	2000 m^2	15000 m^2	50000 m^2	500 m^2

Source: supreme committee of town planning, 2000

Table 3.11: Standard of public facilities provided by the private sector

Commercial	Nursery	Petrol stations
1600 m^2	4000 m^2	2500 m^2

Source: supreme committee of town planning, 2000

Table 3.12: Standards of public services provided by relevant government organisations

Roads	Electricity	Water	Telephone	Mobile	Waste	Post office
20 – 12 m	25 m^2	600 m^2	1500 m^2	400 m^2	25 m^2	500 m^2

Source: Supreme committee for town planning, 2000

Regarding the considerations associated with climate change and the flooding caused by rainwater, the standards direct new residential neighbourhood planners toward ensuring that designs must be supplied with adequate local surface drainage collections in nearby valleys, providing open channels or underground pipes and raising the levels of construction determined in relevant studies. In addition planning is not to be permitted in flood prone areas unless the concerned authorities' instructions are obeyed and crisis data analysed. Planners also need to consider whether it is necessary to include barriers to manage sea and valley flooding.

The residential and public facilities and services plots are allocated on a low-density basis (not compacted land use design) by the Ministry of Housing on vacant government land. Before approval, concerned organisations are permitted to revise the design details and comment. Public services utilities should also be designed to retain spaces as per

requirements, and arranged accordingly by related organisations at the time of construction (Ministry of Housing, 2009). In practice, the approved standards are not fully implemented; for example, the majority of residential land plots are $600m^{2,}$ a space that could be used to build more than one housing unit. Road widths range between 20 and 15m, and there are no roads of 12m. In addition, public facilities and services areas do not meet prescribed standards; some are larger and others are smaller and none is in walking distance of residents, most are more than 300m from the residential plots. In terms of water flooding, many new residential neighbourhoods have been planned in low areas and proposed water channels have not been constructed.

Table 3.13: Number of land use design plots over the last two five year development plans

Five-year development plan	Residential plots	Public facilities and services plots
2001 – 2005	228,578	32,485
2006 – 2010	472,266	61,473
Total 2001 – 2010	700,844	93,958
Grand total	794,802	

Source: Ministry of National Economy, 2011; Ministry of Housing, 2002; Ministry of Housing, 2008

Table 3.13 shows the number of vacant land plots for residential and public facilities and services planned over the course of the last two five-year development plans from 2001 to 2010. The number of residential land plots planned in the period 2006 to 2010 represented 67% of the total planned plots in the period between 2001 and 2010. Moreover, other land plot services comprised 66.7% of the total planned plots for the same period. This shows a large increase in planned land plots is needed to fulfil pre-existing individual applications registered before the new housing policy took effect in 2008, and for applications subsequently registered by men and women as a part of the new housing system (for more detail see section 3.9).

These design plots have been used to cover the applications and compensation for lands affected by several projects (Ministry of National Economy, 2011; Ministry of Housing, 2002; Ministry of Housing, 2008).

3.8 The implementation of planned public facilities and services

Multiple organisations are involved in the implementation of public facilities and services for the planned plots. The Ministry of Housing designs the planned areas, which include

public facilities and services plots, and distributes them to the relevant organisations. Municipalities issue construction permits and several related authorities provide the infrastructure. Government investment companies operate the electricity and telecommunications services (Supreme Committee of Town Planning, 2000).

Table 3.14: Organisations implementing public facilities and services on the planned plots

Organisations	Functions
Ministry of Housing	Plans, distributes and registers all land plots uses. Finance and grant social houses
Housing Bank	Finance and constructs houses using private contractors.
Ministry of Education	Finance and operate schools
Ministry of Health	Finance and operate hospitals and health centres
Electrical Companies	Provide and connect electricity after construction permit.
Water Authority	Provide water by networks or commercial tankers
Telephone Companies	Mobile or telephone landlines after house construction.
Municipalities	Provide roads and waste collections after construction.
Other public facilities & service	Provide by relevant organisations after housing constructed, depending on the size of population.

Source: Supreme Committee of Town Planning, 2000

Commercial and industrial plots are granted to citizens and private sector firms with fees and specific rules. The plots were granted to private Omani investors to develop new housing areas, but were constructed and invested on a commercial base. The Supreme Committee for Town Planning (2000) identifies the organisations responsible for implementing public facilities and services to new residential neighbourhoods (see Table 3.14).

Table 3.15: Public facilities and services land plots granted in the two five-year development plans from 2001 - 2010

Five-year development plan	Public facilities and services plots		
	Commercial plots	Industrial plots	Services plots
2001 – 2005	12,358	2,634	1,235
2006 – 2010	8,579	4,226	1,902
Total 2001 – 2010	20,937	6,860	3,137
Grand total	30,934		

Source: Ministry of National Economy, 2011; Ministry of Housing, 2002; Ministry of Housing, 2008

As shown in Table 3.15, the public facilities and services plots distributed from 2001 to 2010 comprised 30,934 land plots (Ministry of Housing, 2008).

3.8.1 Coordination of relevant organisations

In relation to the coordination of relevant organisations, the Ministry of Housing coordinates the design and development of new residential neighbourhoods with the relevant organisations. The Ministry of Interior coordinates with concerned organisations and supervises the coordination between the organisations and local people through the Municipal Councils. The public and private organisations involved in the planning and development of public facilities and services for the new housing areas hold several meetings and work with the Ministry of Housing to revise and approve projects (Ministry of Housing, 2008 and Ministry of Legal Affairs, 2011).

3.8.2 Finance and operation

Stakeholder organisations finance and operate government owned public facilities and services in the new residential neighbourhoods. The government funds the services, and provision depends on yearly budget, priorities and the size of the population living in a certain housing area; however, electricity is usually connected before people move in. Major projects are constructed with private sector partnerships on a tender basis. This is done directly by the central ministries, while local level projects are operated by local offices with private sector partnerships. Private public facilities are distributed to private firms, who finance and operate them. Recently the private sector has started developing and operating sites as freehold real estate projects, working with the government on a partnership basis. The production, distribution and collection of payments for electricity, gas and telecommunications is fully privatised (Supreme committee of town planning, 2000).

3.9 Obstacles that might face the development process and some suggestions for better practices

From the above review of the existing conditions affecting the housing policy system, and the development process for new residential neighbourhoods in Oman, some obstacles emerged, which require further study to ensure best practice in the future.

According to the figures presented in the tables above, there is an over-allocation of residential land plots in relation to genuine requirements for housing. There are some policy obstacles as the implications when providing serviced housing affect the needs of

citizens and affect the environment. As a result, there is a slowing of the development process for new residential neighbourhoods. These obstacles are presented as follows.

Regarding the housing policy system and law (LREL and SHL), the increase in the national population has increased the need for housing units and residential land plots in serviced areas. The new housing policy system allows all male and female citizens over 23 years of age to apply for housing, which has increased housing applications and imposed greater pressure on the government to offer land plots. The total number of non-granted residential land plots and social housing applications reached approximately 450,000 at the end of 2010, representing severe overburdening of the system. Although the Ministry of Housing has supplied and granted 502,702 residential land plots to individual applicants, many of these have been outside urban areas, and with no public facilities and services (Ministry of Housing, 2010).

In addition, the rising value of the distributed land plots without development indicate that allocated plots are often sold on for profit. There is also no clear opportunity for housing developers to become involved in the housing market. There are many choices for housing finance, but the majority are based on relatively high interest rate loans. In fact, by granting vacant residential land plots without public facilities and services to individuals with limited finance resources, the government could be failing to target the need for family housing.

Thus, the housing policy system may require revision in relation to the development process applied for new residential neighbourhoods. Specifically, it might be better to develop vacant residential land plots with public facilities and services and completed houses, to be granted to households only. Subsidised housing loans can be offered to people wishing to build houses or wanting to buy completed homes from developers. This practice could be administrated by relevant government organisations in cooperation with private developers, banks and finance agencies.

We now turn to the practical applications of the land use design layout regulations and development processes laid out. In relation to strategic urban plans, the focus has been on the modernisation of the country's activities, and the acceleration of the social economy has had a negative impact on quantity and quality in terms of the development of new residential neighbourhoods. This is because no spatial planning has been done on the basis of national strategic spatial planning, or the five year development plans, which have not laid out a clear housing action plan.

Moreover, the majority of the old urban planning is based on secondary data collection. Thus, the government needs to provide effective strategic spatial plans at national and local levels. At national level, it might be useful to accelerate the provision of national strategic spatial plans (ONSS), and at local level to provide regional and master plans (RSP & LMP). Specialised consultants, supervised by the relevant organisations and approved by concerned councils, might best provide this.

Regarding land use design standards, the allocation of new housing areas is chosen by Ministry of Housing staff only, and usually applies to flat open, and not levelled government land, which many citizens refuse to accept. In addition, the chosen location may not be linked to a citizen's work place, main roads, or public facilities and services. The topography of some settlements creates difficulties in delivering new housing areas close to such places.

In relation to sustainable housing design, the distribution of vacant land plots based on the existing system has consumed numerous open spaces, negatively affecting the environment. Many government organisations have specific protocols and regulations about housing rules, how to develop projects, and also about making claims for sustainability; however, sometimes they do not apply these rules and regulations. Due to the lack of facilities in neighbourhoods, the low cost of petrol energy, lack of public transport and easy car finance choices, people find it easier to buy a car to solve their daily travel needs, and do not walk or cycle. All these components can have a negative impact on the environment and increase the risk of climate change.

Residential and public facilities and services plots are designed based on low density principles, and there are separate plans for housing, main roads and public services. The new housing area map shows the boundaries of land plots are implemented only relative to different uses, while the layout of municipality facilities and public services routes are planned and approved at the time the services are developed. This is may be because of limited data, lack of a GIS, and insufficient human resources in the form of specialists in planning. Ideally, all the necessary services should be arranged when preparing the layout of each planned area.

In relation to neighbourhood design overall, there have been no procedures implemented to match the aim of a liveable city design. The absence of such an approach also needs to be resolved by related organisations, such as the Higher Planning Council, Ministry of Housing and by public facilities and services providers. To improve each

neighbourhoods' sustainability and design quality, it would also be better to use approved mixed or compact land use design standards and allocate them nearer to people's workplaces with infrastructure links to existing housing zones. Designs might be better were they prepared by private consultants, supervised by related urban planners and approved by relevant organisations and municipal councils, instead of planned and approved by a single organisation, such as the Ministry of Housing.

As explained above, in relation to the development process for public facilities and services, the relevant organisations offer public facilities and services after building the land plots, with priority given to electricity only. Other services come later, depending on priority orders and budgets. This does not encourage people to construct on their land, and most wait years to do so, or simply sell their plots as monthly Ministry of Housing land sale indicators shows that, adversely affecting the development of the new housing areas.

The dissociation between allocated housing, building services and the financial programmes offered renders the housing system unsuccessful, and raises the costs for the construction of houses and the provision of public facilities and services. Public facilities and services are all financed and operated by government organisations, only electricity and telephones are provided by government investment companies.

Local communities are indirectly involved through their elected members on the Alshorra Council, Municipal Councils and the appointed members in the State Council and specific local committees. These committees suggest how to deliver new housing areas via relevant organisations and within their existing budgets and plans. The dynamics of developing new residential neighbourhoods may require more coordination, finance and operational management processes.

To resolve this situation and develop new residential neighbourhoods it might be better to provide the much needed public facilities and services before the land plots are distributed. This process could be monitored through a steering committee and the relevant municipal council. The finance and operation of public facilities can be via government organisations, and government investment companies in cooperation with private sector.

All the obstacles and proposals for better development process practices are summarised in Table 3.16 will be investigated through primary data collection, which is analysed and discussed in the following chapters.

Table 3.16: Obstacles that might face the development of new residential neighbourhoods and proposed improvements

Concepts	Indicators	The obstacles Functions	The proposed suggestions function
Housing policy system	Supply	Land plots supplied and granted to individual males and females and this increases the number of applications. No completed houses granted only vacant land plots without services.	Develop to supply vacant residential land plots and completed houses with public facilities and services granted to households only on a supply and demand bases.
	Finance	Subsidises housing loans through the Housing Bank only. Many distributed land plots sold to generate income. No completed houses for sale on the market.	Grant households subsidised housing loans to build house on vacant residential land plot or buy a completed houses from developers paid through many banks in cooperation with government.
	Administration	Managed by government organisations and Housing Bank only.	Administrated by government and concerned organisations in cooperation with private sector.
Land use design layout regulations	Strategic spatial plans	A national planning, economic development plan only and no spatial plans at local planning level, nor any action or master plans.	Provide national spatial plan and at local level, regional plans and master plans, supervised and approved by concerned organisations and concerned councils.
	Design standards	Designed on a low density basis not to sustainable rules. Allocated in any open available spaces. Land plots and utilities routes do not match approved standards.	Use compact land use design standards, and allocate near workplaces and link to existing housing zones. Designed by private consultants, supervised and approved by relevant organisations and the municipal council.
Implement public facilities and services	Public facilities and services	Provided after land distributed and houses constructed based on density and budgets.	Provide main public facilities and services before land plots are distributed.
	Coordination	Less coordination in spatial planning and services delivery.	Appoint acting committee and approve by Municipal Council
	Finance & operation	All public facilities financed and operated by government, only for electricity and telephones.	Public facilities and services partnership between government and developers.

3.10 Chapter summary

This chapter has provided an overview of the existing development process for new residential neighbourhoods in the Sultanate of Oman. It has explored the existing housing policy system, land use design layout regulations and the implementation of public facilities and services employed in this development process.

It is clear that there are areas that would benefit from revision by decision makers. These include the existing rules for granting residential land plots and housing finance and administration, the strategic spatial plans and the land use standards used, and the way public facilities and services are provided, in relation to relevant actors' coordination, financing and operations.

As presented in Table 3.13, the chapter concludes with proposed suggestions for better practices. All these issues will be investigated through primary data collection.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter explain and describes the method used for the research study to collect and analyse the data and identify the obstacles slowing the development process for new residential neighbourhoods in Oman and suggests some solutions to improve their development process. As far as the researcher knows, few previous studies have been carried out to investigate the development process of new residential neighbourhoods in Oman. Most research regarding development in the Sultanate of Oman is in the fields of education, health and energy.

The chapter is divided into 9 sections. Section 2 explains the research design methodology and section 3 describes the issues related to the secondary and primary data collection methods and their process. In section 4 the research survey techniques will be described. This includes the survey methods used, which included structured and semi-structured interviews, questionnaires and site visit observations. It also describes the pilot survey test and the field and administration work. Section 5 describes the approaches to analysis of the findings from the data. This includes quantitative statistical data analysis and open qualitative information data analysis. Validity and reliability are discussed in section 6 and the discussion of the results and their applicability is outlined in section 7. Section 8 outlines ethical research considerations and section 9 summarises this chapter.

4.2 Research design methodology

The research is designed to answer the research questions regarding the slow development process for new residential neighbourhoods in the Sultanate of Oman, as explained in Chapter 1 (see section 1.3). It covers three issues, the housing policy system, land use design layout regulations and the provision of public facilities and services. This section starts by introducing the theoretical aspects of the methodology, and then describes the process followed to achieve the research aims and objectives.

Methodology, according to Johnston (1983, p.4), is “a system of explicit conducted rules and procedure upon which research is based and against which claims for knowledge are evaluated” (Khalid, 2010). Baines and Chansarkar (2002) state that every research is

unique and has its own objectives and can be tackled in different ways, but it should utilize the best and suitable research methods to achieve its objectives.

There are two main research methods, qualitative and quantitative. The combination of these two methods can be used as a mixed research method (Wilkinson, 2000). Quantitative research is measurement and quantification by turning the information into numbers. It employs deductive logic, where pre-existing theoretical ideas or concepts are tested. Some researchers use a quantitative method to focus on macro phenomena. The detailed specifications can be repeated and the findings generalised. On the other hand qualitative research presents findings in non-numerical form with little use of numerical data and focuses on meaning. It employs inductive logic, based on collecting data from the theoretical ideas of small scale research and the generalised finding is not a major concern. Some researchers use this method for micro phenomena (Patton, 20025, Teddlie, 2009 and Robson, 2011).

The mixed method is commonly used where there is a substantial element of qualitative data collection as well as a substantial element of quantitative data collection in the same research. It is characterized by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data. The qualitative data function is to help explain and interpret the findings of a primarily quantitative study. The basic concept is that integration of quantitative and qualitative data maximizes the strengths and minimizes the weaknesses of each type of data. The benefit of a mixed method is to produce a more complete and comprehensive picture of the topic of the research and to answer different research questions (Creswell and Clark, 2010 and Robson, 2011). Layder (1993) attempted to bring the two approaches together and calls this a realistic approach, arguing that social reality has different interwoven dimensions.

The research methods that were applied in this study were chosen with consideration of the context and its objectives. As Strauss and Corbin (1998) point out, no method is superior to another in itself, because an "instrument is an instrument, not an end in itself." It is rather a question of knowing which method is required for which aspect and stage of research so as to obtain a clearer picture of the problem under investigation (Bilolikar, 1998 and Silverman, 2001).

This research adopted a quantitative and qualitative mixed approach method to achieve triangulation and greater validity. The study is based on both statistical data and qualitative information about the development process of new residential neighbourhoods

in Oman. According to Bryman (2012) the triangulation or greater validity refers to the traditional view that quantitative and qualitative research might be combined to triangulate findings in order that they may be mutually corroborated.

The quantitative method includes structured interviews with professional experts, questionnaires for citizens and site visit observations in new residential neighbourhoods. The qualitative method adopted was semi-structured interviews with professional experts, as shown in Table 4.1.

Table 4.1: Research issues and types of research methods used

Issues	Methods	Survey techniques
The housing policy system	Quantitative	Structured interview Questionnaire Site visit observation
	Qualitative	Semi-structured interview
The employment of land use design layout regulation	Quantitative	Structured interview Site visit observation
	Qualitative	Semi-structured interview
The implementation of public facilities and services	Quantitative	Structured interview Questionnaire Site visit observation
	Qualitative	Semi-structured interview

The housing policy system issues were investigated by each of the four survey techniques. The land use design layout regulation issues were investigated by structured and semi-structured interviews with professional experts and researcher site observations, while citizens' questionnaires were not used for this case, because the collected data required is mostly specialised. The data collection regarding issue in the provision of public facilities and services was divided into two parts: the required types, finance and operation of public facilities and services was investigated by all the four survey techniques, while because of its specialised data coordination was investigated by interviews with professional experts. These are summarised in Table 4.2.

According to Thomas (1996: 119), "a good survey design often combines several modes, for example, a short and simple self-completion questionnaire followed by in-depth interviews with individuals selected by reference to their self-completed responses".

Table 4.2: The survey techniques and their questions

Survey types	Questions types	Questions topics
Structured interview	Closed questions	Housing supply, finance and administration Spatial plans. Land use design standard. Types of public facilities and services. Coordination, finance and operation of public facilities and services.
Questionnaire	Closed questions	Housing supply, finance and administration. Types of public facilities and services. Finance and operation of public facilities and services.
Site visit observations	Structured categories	Housing supply, finance and administration. Spatial plans. Land use design standard. Types of public facilities and services. Coordination, finance and operation of public facilities and services.
Semi-structured interview	Open questions	Housing supply, finance and administration. Spatial plans. Land use design standard. Types of public facilities and services. Coordination, finance and operation of public facilities and services.

Bryman (2004: 457) states that "one of the chief ways in which quantitative research can prepare the ground for qualitative research is through the selection of people to be interviewed". These statements, and of course others, were taken into consideration in selecting the research methods. Questionnaires were the basis of the quantitative method here, for they have the advantage of being able to reach a large number of respondents. However, statistics alone cannot give a complete picture of the situation. Qualitative methods were therefore needed to gather information that could not be deduced from a quantitative method.

4.3 Secondary data collection

Secondary data is that which is already in the public realm and includes academic books, journals, policies, regulation references, official reports, annual reports, economic reports and national statistics publishers (Robson, 2011).

For this research, some secondary data were collected from published reports and daily work reports and other data that are available upon request from the databank of the related organisations, such as records of planned and distributed residential land plots. This type of data was gathered from concerned organisations workplaces and used to indicate the amount of development support provided to the new residential neighbourhoods. The data gathered were related to housing supply, housing finance and housing administration, and regulation of land use design and the development of public facilities and services in relation to their types, finance, operation and coordination. From all the secondary data collected the questions for the primary data collection phase were constructed.

4.4 Primary data collection

Primary data collection was used as another source for gathering information. The survey method was employed in this research to investigate some issues about the development process for new residential neighbourhoods in Oman. This includes housing supply, finance and administration, and regulation of land use design and the way of providing public facilities and services in relation to types, finance, operation and coordination. Based on the research objectives, the data was obtained from four different sources structured and semi-structured interviews with professional experts, citizens' questionnaires and the researcher's site visit observations. The research survey questions were constructed from the secondary data collected. The respondents in this research were a sample of professional experts from different government and private organisations concerned in development, citizens and selected existing new residential neighbourhoods from the Governorate of North Al-Batinah in Oman. The data was collected in the period between October 2012 and March 2013. Each of these steps in the research is described in detail in coming subsections.

4.4.1 Structured and semi-structured professional expert interviews

There are many ways of gathering data by using survey methods such as personal interviews, mail and panel or telephone questionnaires. In relation to this, Kerlinger

(1986) and Miller (1991) suggest that for social scientific survey research, personal interviews should be employed because they are more powerful and useful tools. The interview works directly with respondents to show their opinion and impression. It acts as an important source for discovering correct and actual feelings toward the subject. The interview and questionnaire are direct methods of collecting information but respondents may not be ready to give the information and so highly developed interview skills are required.

The interviewees should be made to feel comfortable and the interview is recorded by tape, video or by taking notes. Any additional questions to be added by interviewer can be posed at the end. The analysis is conducted by writing up notes, as fully as possible and as soon as possible after the interview. In that way, the responses remain fresh in the interviewers mind. Interviews are conducted using two approaches, face to face interviews and telephone interviews for respondents unable to meet face to face (Wilkinson 2000, Bryman, 2001).

Interviews can be focused on a given set of pre-defined questions. These are known as semi-structured and structured interviews, but in many interviews some explorations follow the answers (Wilkinson, 2000). According to Robson (2011), in semi-structured interviews the interviewer guides the topics to be covered and the order of the questions, and any additional questions to be asked after that. There is freedom in the exact wording of questions, the time to answer and the attention given to different topics. Wilkinson (2000) considers it as a mixture of two approaches, structured questions are asked followed by exploration related to those questions. From the point of view of Bryman (2012), the researcher semi-structured interview has a list of questions or specific topics to cover and the interviewee has a great deal of leeway in how to reply. Nevertheless the questions may not follow their outline, and more questions can be asked than those outlined.

The aim of the structured interview is to ensure that interviewee's replies can be aggregated. The interviewers are supposed to read out questions in exactly the same order. The questions are very specific with a fixed range of answers as closed or pre-coded questions (Bryman, 2012). Wilkinson (2000) points out that the closed questions make the respondents choose from pre-defined coded categories which help to speed up the analysis.

In this research closed questions were used for structured interviews which can be translated into statistical data and open questions for semi-structured interviews. The structured and semi-structured interview questions are divided in three axes. The first is the housing policy system which covers the housing supply, housing finance and housing administration. The second axis is related to land use design layout regulations; this includes the importance of providing spatial plans and the design layout standards. The third axis is to find out the type of public facilities and service required before residential land plots are distributed and how to coordinate, finance and operate them. The design and writing of the both structured and open interview questions for this research took a long time to complete. They were carefully revised several times to meet the research objectives. Some input was obtained by reviewing references and other input was given by the supervisors for this research. Many draft forms were drawn before finalising the experts' interview questions. The comprehensibility and relevance of the interview questions were tested through a pilot survey and were then finalized.

In this research, part of the interview structured and part of it semi-structured, both face-to-face telephone interviews are conducted through a set of structured and open questions which were designed to investigate and collect the data required as mentioned above.

Professional expert samples

Most sampling in interviews-based research is purposive sampling; it is a non-probability form of sampling, not on a random basis. The goal is to sample in a strategic way, relevant to the research questions and with variety in the resulting sample (Bryman, 2012). Gerson and Horowitz (2002) suggest that "fewer than 60 interviewees cannot support convincing conclusions and more than 150 produce too much material to analyze effectively and expeditiously".

Thus, eighty professional experts were selected from the public and private sectors involved in developing new residential neighbourhoods. These respondents were selected because they used to deal or still deal with the housing policy system and have valuable experience relevant to the development process of new residential neighbourhoods. They could give comments and suggest improvements.

The professional experts were chosen as follows:

- Sixteen community experts, including two elected members from Al Shorra Council members (the Parliament), two elected members from Municipal council

and twelve from local representatives for public responsibilities and activities, representing locals' interests in related government and private organisations and appointed by citizens.

- Sixteen urban planning experts, including two planners from the Higher Planning Council, ten from the Ministry of Housing planners and four managers from Engineering Consultant Offices who were dealing with land use planning projects. These engineers and planners were working on different forms of urban planning including the detail of land use design, supervising and approving the new residential neighbourhoods.

- Sixteen housing experts, including twelve housing specialist working for the Ministry of Housing but they were independent, with long experience of the citizens housing system. There were also two lawyers from the Ministry of Housing and two private lawyers who specialised in housing matters.

- Sixteen public facilities and services experts, including six specialists from the Ministry of Regional Municipalities and Water Resources, five experts from different public facilities organisations and five experts from different public service organisations. They were higher officers and engineers involved in planning, finance and operating public facilities and services.

- Sixteen private developers, including six housing finance agency managers who allocated housing loans, five real estate experts whose business was to buy and sell open residential land plots and completed houses and five construction contractors involved in build citizens' houses.

Table 4.3: Professional experts' response rates

Number of professional experts invited	Number of professional experts responded	Number of closed question forms distributed	Number of closed questions forms completed
80	80 (100%)	80	80 (100%)

The professional experts mentioned all responded to the interviews either face to face or by telephone. The question forms were distributed to them by hand or through emails two days before the interview. The researcher either met them in their offices or in his office or called them by telephone and discussed the structured questions with them to gain their

viewpoints. Some of the forms were collected directly after the interviews and others were completed and sent back by email (see Table 4.3).

The semi-structured interview questions were attached to the structured interview questions and discussed and answered by the interviewer at the time of collecting the closed structured interview questions. This was done face to face or by telephone. Confidentiality was assured for respondents through identification by group sector and number. As stated earlier, a decision was made that audio recording was not necessary when conducting the study, and so notes were made of the conversations. The researcher's position in the Ministry of Housing might potentially have had an impact, which might have made participants reluctant to be critical or open. However, no hostility, or evident reluctance to talk was perceived. The respondents tried to use these discussions as opportunities to ensure that their voices were heard. The variety and tone of the evidence that collected encouraged the belief that the respondents were being free, open and telling the truth.

Table 4.4: Kruskal-Wallis Test for professional experts' groups

Variables	Numbers	Mean
Urban planners	16	31.12
Housing experts	16	39.69
Public facility and service experts	16	37.88
Private developers	16	45.97
Community representative	16	47.84

The group division was tested by the Kruskal-Wallis Test because of there was five different groups of 16 experts. Each was tested by non-parametric test, as shown in Table 4.4. The Asymp Sign result was 0.256 which is more than 0.05. This indicates that the professional experts' views are very close to each other. This proves that they share close views about the obstacles and suggestions of development process for new residential neighbourhoods.

Structured interview questions

The structured interviews with professional experts were presented as closed questions and divided into seven sections. These sections contained several statements related to the subject. The respondent had to choose an answer for each statement by circling only one of these choices; strongly-agree, agree, uncertain, disagree or strongly-disagree. The

responses then were used in next chapter for the data analysis. The questions are attached in Appendix D.

Section A was focused on housing policy system. This was to compare the existing housing system that grants land to all individuals or to a proposed system to grant it only heads of household. Section B concerned housing finance, including subsidised housing loans to build or to buy a house. Section C was about who manages the housing programmes.

Section D concerned the strategic spatial plans; this was to elicit the importance of providing a strategic urban plan and master plans with housing zones for each city. This was also to determine the methods of preparation, supervision and approval. Section E was about improving the method of designing the layout of the new residential neighbourhoods in relation to theories and standards. This was also to determine the processes of design, supervision and approval.

Section F focused on the public facilities and services that should be provided before residential land plots are distributed. This includes the most important facilities and services that should be provided. Sections G investigated the methods for of coordinating, financing and operating the public facilities and services.

Semi-structured interview questions

The semi-structured interviews with professional experts' contained six open questions, related to the housing policy system, the land use design layout regulations used and the provision of public facilities and services. All of these questions gave the experts space to introduce their views about the development process for new residential neighbourhoods in Oman. Each respondent had to answer open questions after answering the structured questions so that he gave a clearer picture about the subject. They did this by writing their views on a separate paper sheet of paper or by discussing them directly in the meeting with the researcher. The researcher wrote their answers in a note book. This was then used for the data analysis described in the next chapter. The purpose of using this method is to triangulate the data obtained with that obtained from the structured interview method. The questions are attached in Appendix D.

4.4.2 Citizens' questionnaire

The second type of data collection method was the citizens' self-answer questionnaire. The purpose of using this type of questionnaire in this research was to reach a large

sample of respondents, so that the research findings could be generalised, as far as possible, across the actual population of Omani citizens who applied for or had been granted residential land plots during the period of the survey.

Questionnaires are useful tools for collecting data from large numbers of people. They help to produce the type of information required about a particular problem (Wilkinson, 2000). The most important advantage that prompted the use of the questionnaire was its convenience for the respondents, who could complete it when it suited them. Most citizens cannot complete a questionnaire on the day it is received, so they leave it for their free time. On the other hand, the main disadvantage is the difficulty of asking open questions and clarifying any complex issues. That was why other research methods were used to compensate for open questions.

The questionnaire was designed to find out the citizens' opinions about the housing types needed and the types of public facilities and services that should be provided before new residential neighbourhoods are delivered.

Citizens' samples

It was clearly impractical to survey the whole of the population to be studied, owing to the expense, time and effort entailed in dealing with the huge amount of data generated. It is therefore usual to select a representative sample of individuals. Most of the time decisions about sample size are affected by considerations of time and cost (Bryman, 2012). The suggested sample size is linked to the average number of residential land plots distributed to citizens in the studied geographical area; this is 3000 plots per year (Ministry of Housing, 2011). From that, the researcher estimated the sample size and selected more than 10% which was 360 citizens to be questioned.

For this study probability sampling was used, in particular, stratified sampling when selecting participants (citizens who had been granted and who had applied for residential land plots) for the self-completion questionnaires.

The citizens questioned were selected from the 6 cities in the Governorate of North Albatinah as follows:

- In the cities with large populations, such as Sohar, Saham and Suwiq, 240 citizens questioned, 80 in each city.
- In the cities with smaller populations such as Shinas, Alkabora and Liwa, 120 citizens questioned, 40 each in each city.

The questionnaire was administered by direct distribution and collection through the researcher and some helpers from my work organisation. After collection, the completed questionnaire forms were separated into two groups, forms completed by citizens who were granted residential land plots and forms completed by citizens who had applied for residential land plots. The total number targeted from each type was 150 forms. Once this number was reached, the research transferred to the analysis stage.

The citizens' sample survey was for citizens who had been granted or who had applied for residential land plots in any new residential neighbourhoods allocated in the Governorate of North Al-Batinah. After being collected from the respondents, the sample responses were divided into two types (see Table 4.5).

Table 4.5: Citizens' response rates

Number of questionnaires distributed	Number of questionnaires returned	Number of questionnaires completed	Number of questionnaires not completed	Number of questionnaires not returned
360	316 (87.7%)	300 (83.3%)	16 (4.4%)	44 (12.3%)

The researcher distributed 360 questionnaire forms targeting citizens aged between 23 and 50 years old, through helpers. The helpers first made sure that the respondents had already been granted or had applied for residential land plots and were aged between 23 and 50 years old. Then they gave them the questionnaire forms and later they collected those forms. The researcher hoped to reach an equal number of 150 from each group, those already granted land plots and citizens who had applied to them, to allow the findings and analysis. The number of questionnaire forms returned was 87.7%, of which 83.3% forms were completed, 4.4% were not completed and 12.3% had not been returned at the time collection was ended.

The first group consisted of 150 citizens who had been granted residential land plots. They were chosen for this survey because most of them were already heads of households. They were also at the stage of looking for finance to build their own houses and requesting that public facilities and services be provided for their plots. Their questionnaire answers showed their opinions about the former and new housing policy systems and how they want public facilities and services to be provided in the new residential neighbourhoods.

As shown in Table 4.6, the T-Test for the general information was done with two variables. The sig figures for all types of information are more than 0.05, which is acceptable.

Table 4.6: Grantees general information T-Test

T-test group	Variables	Numbers	Mean	Standard deviation	Sig
Sex	Male	126	4.3658	0.30415	0.97
	Female	24	4.3662	0.30196	
Ages	23 < 45	119	4.3664	0.31061	0.83
	45 < 50	31	4.3636	0.27541	
Employment sector	Government	122	4.3847	0.30619	0.86
	Private	28	4.2836	0.27776	

In relation to gender there were more males than females because the old rules only granted land to males and to females only in special cases. Traditionally, in Oman men remain the head of the household, responsible for housing finance and they are freer to apply for aid following construction and to apply for other services.

The results show that the majority of respondents were working as government officers rather than in the private sector. The questionnaires were distributed randomly and not focused on specific employees or biased toward any sector.

The second group are the 150 respondents who had applied for residential land plots. This sample represents individual members of households who have applied for residential land plots under the new housing policy system that grants land to individuals for men and women aged more than 23 years old. This means they applied after 2008. The questionnaire answers reflected their view about the housing system and providing public facilities and services for new housing areas.

The T-Test for the general information was done with two variables. The sig value for all information is more than 0.05, which indicates that the respondent's general information shows little variation and does not affect the statistical data results. The general information about the T-test for citizens who had applied for residential land plots is shown in Table 4.7.

Table 4.7: Applicants general information T-Test

T-test group	Variables	Numbers	Mean	Standard deviation	Sign
Sex	Male	43	4.4024	0.26766	0.32
	Female	107	4.4240	0.25993	
Ages	23 < 45	145	4.4142	0.25936	0.98
	45 <	5	4.5212	0.33292	
Employment sector	Government	123	4.4119	0.26689	0.89
	Private	27	4.4444	0.23787	

In relation to gender, in this group there are now more women because of the change in the citizens' housing system that allows women to apply for residential land plots. Most men had already been granted residential land plots. Again there were more government officers than private sector workers. This reflects that most facilities and services are delivered by the government.

Questionnaire format

The questionnaires were carefully designed. They addressed two issues; the first one was citizens' housing regulations, which includes the types of housing needed and types of housing finance required; the second issue was the types of public facilities and services that should be provided before housing delivery, and who should finance and operate them. The questionnaire was designed in 5 main sections and in each one there were subsections. The construction and writing of the questionnaire for the study purpose took time to complete. It was revised carefully several times to meet the research objectives. Some input was obtained by reviewing references and other input was given by the supervisors. Many draft forms were drawn before finalising the questionnaire forms. The comprehensibility and relevance of the questionnaire was tested through a pilot survey and it was then finalized.

The citizens' questionnaire contains several self-answer questions, with options related to the question subject. The citizens' questionnaire was divided into five sections. Section A indicates whether the respondent had been granted housing land plot or had applied for it. It also gathers the respondents' personal information, including age, gender, occupation, working organisation and number of household members.

In sections B to E, the respondents had to choose for each statement if they strongly-agreed, agreed, uncertain, disagreed or strongly-disagreed. This illustrates their opinions about the subject which will be used in the next chapter for the analysis.

Section B gave choices to agree with granting residential land plots to individuals or only to heads of household. Section C gave choices regarding methods of housing finance, including the use of subsidised housing loans to build or to buy houses. Section D about who should manage the housing programmes.

Section E gave choices regarding the public facilities and services that should be provided before residential land plots are distributed. This includes identifying the most important facilities and services that should be provided. Sections F gave choices concerned with the ways of financing the implementation of the public facilities and services (see Appendix E).

4.4.3 Site visit observations

Observation is one of the basic complementary methods to address the research objectives directly from the site and compare these observations with the formal data available. According to Robson (2011) structured observation can be used as a supportive method to collect data and it is a way of quantifying behaviour and can include predetermined categories for recording. As Bryman (2012) explains, structured observation is a technique in which the researcher employs explicitly formulated rules for observation and recording of behaviour for the same period of time and using the same rules. According to Robson (2011) that the researcher needs to define important concepts and devise ways in which they can be measured on the dependent variables. The reliability and validity of structured observation can be achieved through an observation schedule and problems occur if the observer uses different instruments that vary from each other (Bryman, 2012).

For this research the structured observation method used to support the other research technique methods already mentioned. This was done to observe the changes that happened in the sample of existing new development residential neighbourhoods. Samples were chosen from Saham, a city with a large population, and Shinas, a city with a small population. From each city the researcher chose three existing new residential neighbourhoods, one from the city centre, one from the city suburbs and one from a rural area. This was to find out the rate and types of development in new residential neighbourhoods. The researcher visited them at the same time and used the same coding schedule. The observation code schedule concentrated on the location chosen and how far

it was from urban places. The land use design was scheduled and evaluated in relation to designer, supervisor, approval and applied standards. The existing houses and public facilities and services were counted and compared with the distributed residential land plots and public facilities and services designed. This was to find out how the development process for the new residential neighbourhoods presented on the sites.

The selected new residential neighbourhoods are shown in Table 4.8. City 1 (SAHAM) is one of three highly populated cities in the Governorate of North Albatinah. Its population is 82,158 citizens, consisting of 12,450 households. The total ground area is 3,600km^2 (Ministry of National Economy, 2011). City 2 (SHINAS) is one of three other lower populated cities in the governorate. The population is 44,220 citizens with 6,688 households. The area of the city is 2800km^2 (Ministry of National Economy, 2011).

Table 4.8: Samples chosen for site visit observations

City	Samples	Total plots
City 1 (SAHAM)	City centre sample 1 (ALSAHMI)	1,063
	City suburb sample 1 (MUKILIF)	1,341
	Rural area sample1 (ALMAHAB)	79
City 2 (SHINAS)	City centre sample 2 (ALQWABI)	1,788
	City suburb sample 2 (ALAQAR)	673
	Rural area sample 2 (FAID)	90

4.4.4 Pilot survey tests

A pilot survey test was carried out to improve the design of the questionnaire and to make sure that all information related to this research was fully covered and was serving the study. It helped to identify any weaknesses in the questionnaire and amend them. Bryman (2012) argues that a pilot study is very important before administrating a structured interview and self-completion questionnaire, to ensure the questions operate well, to clear up any confusion and to avoid wastage if any problem appears. He adds that the pilot study should be done if the survey employs closed questions to generate fixed answers and also to provide the researcher with experience and sense of confidence. The pilot study can identify irrelevant, uninteresting, uncomfortable and ambiguous questions.

For the questionnaire, citizens were selected randomly male and female, from those who had applied for or had been granted residential land plots, public or private employees and individuals from different income groups. The aim was that the returned

questionnaires should represent the variety of citizens groups who look for housing services. For the purpose of the pilot survey, 10% of the total number of targeted citizen's questionnaire forms were distributed and collected. One helper of my work staff was appointed in each state to oversee the procedure, to ensure the distribution of the questionnaires and the collection of the returns. After one week, 30 copies of the 40 distributed (75%) were collected.

The reliability coefficient was found in the piloting study by using Cronbach's Alpha Coefficient – SPSS. The value of the coefficient was 0.732 for citizens who had been granted residential land plots and 0.839 for citizens who had applied for the land plots. This indicates that the internal reliability of the questionnaire was at an acceptable level, as shown in Table 4.9.

Table 4.9: The reliability statistics for the sample test

Questionnaires samples	Number of sample	Number of items in each	Cronbach's Alpha
Citizens granted residential land plots	30	33	0.732
Citizens applied for residential land plots	30	33	0.839

The open and structured questions for the interview with professional experts were tested by 8 face to face interviews which is 10% of the total number of targeted professional experts. The pilot test identified some weakness regarding the understanding of some sections. The interview questions and citizens' questionnaire were both modified several times to correct the weaknesses (see appendix F).

Based on the pilot test, the researcher amended the interview questions and citizens' questionnaire to achieve the research objectives. Comments from the citizens passed back through the helpers were studied to exclude or amend those questions and statements that were not useful or clear. The questionnaire and open and structured interview questions were rewritten according to the suggestions of the interviewers and citizens and the questionnaire was then ready for distribution.

4.4.5 Fieldwork administration

The fieldwork for collecting the data for this study was carried out in Oman between October 2012 and March 2013. In this six-month period the researcher conducted the

professional experts' interview, distributed and collected the citizen's questionnaire forms and visited the new residential neighbourhood sites for the site visit observations.

Professional experts were given the interview questions two days before the interview. This was to allow them to become familiar with the subject and to answer the questions before the meeting, to save time. They received the questions either by hand, email or by fax. Some of the interviews were conducted face to face in their offices or in the researcher's office, others were done by telephone. The researcher collected the question forms after they were completed, by hand, by email or by fax. In addition to that, the researcher took notes of the discussion at the time of interview.

The citizens' questionnaire forms were distributed and collected hand to hand by the researcher or by some helpers as some citizens did not have active email. The number of questionnaires distributed by each helper was 60 forms to minimise losses. The respondents were given two weeks to complete them and they were collected in the same way that they were distributed.

4.5 Approaches to data analysis of the findings

The data analysis contains both a statistical and open statement analysis. Bryman (2012) explains that quantitative data can be analysed through univariate analysis. This is done by analysing one variable at a time and the finding is presented in frequency tables by showing the number of people who responded and the percentage belonging to each of the categories for the variable in question. This analysis can be used for all types of variables. Diagrams such as bar and pie charts are the most used methods for displaying the quantitative data because they are easy to interpret and understand and the central tendency can be measured by an arithmetical mean form. According to Wilkinson (2000), there are many ways to analyse quantitative data and one of them is through percentage indicators which provide descriptive data that can be easily and quickly understood. In building conclusions about meaning of the data Wilkinson (2000) suggested the use of inferential analysis, which assists in drawing conclusions about the data by performing certain operations on it.

The analysis was separated into consideration of three factors. The first was the citizen housing system that includes housing types and housing finance; the second related to the land use design layout regulations that include providing strategic spatial plans and land use design standards, and the third was the types, finance, operation and coordination needed in provision of public facilities and services, as follows.

4.5.1 The data analysis of the structured interviews, the citizens' questionnaire and site visit observations

These quantitative data collected through structured interviews, citizens' questionnaire and site visit observations were analysed by the univariate analysis method and the data were presented in Word and Excel 7 software systems and were presented in written statements and in various forms such as tables, charts and graphs.

The analysis was carried out according to the maximum statements chosen by all different respondents in each closed-question section. The statement chosen by respondents as strongly-agree, agree, uncertain, disagree or strongly disagree for each section calculated and presented in tables through the SPSS system. Tables for the frequency and percentage were presented. These tables were presented separately for all types of respondents from both professional experts and citizens. Information from respondents with two variables was tested by the T-Test. For the five professional experts sectors the Kruskal-Wallis test was used because these were five variables. For the site visit observations the analysis was completed using tables that showed the amount of development, which include houses built and public facilities and services developed. The comments were written on the findings and compared with the results from other survey techniques in the resulting discussion.

4.5.2 Semi-structured interviews data analysis

The open questions of semi-structured interviews were analysed by thematic analysis. This is by classifying their answers according to their sections and written statements. According to Wilkinson (2000) qualitative data is usually analysed by subjecting it to some form of coding process carried out by identifying categories and numbering these for sample interview data, grouping and linking categories into super-categories, creating a coding frame and applying the frame to all interview data.

In this analysis each question in the interview is related to the subject heading linked to the question sections in the structured questions and questionnaire. The questions were presented on a separate form and all the experts answered them on that form. The frame of the heading categories was applied to the all the semi-structured interview data. The researcher wrote statements of the experts' comments so they could be compared and combined with the structured interview results in the resulting discussion.

4.6 Validity and reliability

Validity is an important feature of any research, beginning with its content. Ideally the project should be reviewed by professionals in a similar field, who can assess whether the sample fairly represents the population being investigated, and whether the methods of investigation and analysis are appropriate for the research and will produce accurate and useful results. Validity is affected by two important variables. These are the significance of the topic to the respondents and the level of their knowledge of that particular field. It is also attached by the respondents' level of confidence in the researcher to protect their identity (Bryman, 2012).

In this research, professional experts took part in the main studies of developing new residential neighbourhoods. This is an important topic and one that needed investigation. The respondents were advised that their identities would be protected and the data would be used only for research purposes.

The reliability of the citizen's questionnaire statements was assessed by computing the reliability coefficient. A Cronbach Alpha Coefficient was applied to the analysis of the returned copies of the main questionnaires (Bryman, 2012).

In the structured question interviews, validity and reliability were ensured by the choice and structure of the questions and the repetitive nature of the interviews and discussions. Silverman (2001) recommends ensuring reliability by testing questions and training the interviewer. The structured interview questions were tested by the Kruskal-Wallis test.

Generally, the survey questions were pilot-tested, as semi-structured interview questions and structured interview questions and in the questionnaire survey. The research methods, questions and experiences of participants also seemed to reduce the threats to validity and reliability.

4.7 Discussion of results

From the secondary and primary data findings, the discussion has been constructed in relation to the literature reviewed and linked to the data collected from professional expert interviews (structured and open questions), a citizen's questionnaire and the site visit observations. According to Wilkinson (2000), presenting the data should remind the reader of the research questions to provide focus, move from the general to the specific and link the collected data findings together. In mixed method as done in this research the data are collected and analysed separately for each part then, combined to produce a

complete picture about the problem studied as a triangulation process (O' Cathain et al. 2010).

The discussion of the results includes an overview of the outcome from all the research surveys to answer the four main research questions. The thesis presents conclusions about the obstacles facing the development process for new residential neighbourhoods and suggests other factors to the concerned organisations to improve this process.

4.8 Ethical considerations

In social research, ethical considerations need to be applied to the important issues such as harm to participants, lack of informed consent, invasion of privacy and deception. According to Rebson (2011), informed consent means the participants should be asked in advance whether they are prepared to be involved in detail in the research data collection. He adds that the researcher should explain what the study involves and give them time to think about participation, provide a consent form, double- check that they understand the research, their role and that they can ask if they have any questions related to the research. It is important to maintain the confidentiality of records; including care to be taken in publishing the findings to ensure that individuals are not identified. According to Bryman (2012), deception occurs when researchers represent their work as something other than what it is.

Thus, the ethical considerations for a research survey are very important. For this research, all these points were taken into consideration and applied to participants. The research commenced after the researcher obtained ethical approval for fieldwork, from the research supervisor and the School's Ethics Committee at the university. This information, accompanied by an outline of the study and its aims appeared on the front page of the survey questionnaire, and on the structured and open interview questions forms distributed by the researcher. All the participants were informed that the researcher was working in the field of housing provision, even those already familiar with the researcher. The respondents were drawn from different sectors, and all have sufficient experience to participate effectively in interviews to fulfil the purposes of the research purposes, meet key requirements, and give their opinion freely.

In addition, the researcher found it was advantageous to explore this subject with both experts and citizens because their views and needs could be directly related to possible improvements as the information and practical experience they provided could be presented to further the academic research. The disadvantages of this might be that it

would not be possible to conduct their housing provision inquiries or address future expectations.

All the information and questions presented in Arabic language for the participants. And the interviews questions sent in advance of the interview meetings. These ethical considerations were also central to the implementation of all aspects of the questionnaire survey and interview questions. A statement was added to the last page of the questionnaire, asking the respondents whether they would be willing to participate in the follow-up interviews and questionnaire, confirming that their answers were confidential and would be used only for the purpose of research. This covered the ethical considerations stated in the consent form.

These aspects and limitations were covered as part of the ethical considerations raised on the consent forms. While all the interviews and questionnaires were asked in Arabic language, all discussions notes and questionnaire answers were translated into English and then analysed.

4.9 Chapter summary

This chapter has described the design and methods used for the research study in collecting and analysing the data related to the existing housing policy system, the land use design layout regulations and the provision of public facilities and services in the new residential neighbourhoods in the Sultanate of Oman.

This research adopted a mixed quantitative qualitative approach method. To achieve its objectives the research process was divided into three parts. The first one was the secondary data collection including the literature review. The second part was primary data collection; this included structured and semi-structured interviews and citizens' questionnaires as well as site visit observation of the selected existing new residential neighbourhoods. The final stage included the analysis of the findings through SSPS software for quantitative data, and a coding frame for the qualitative data collected. The research culminates in a discussion of the findings from which conclusions are drawn and recommendations made for policies to improve the development of new residential neighbourhoods in Oman.

CHAPTER 5

SURVEY FINDINGS AND ANALYSIS

5.1 An overview

This chapter presents the findings and analysis of the structured interviews and semi-structured interviews with professional experts, the citizens' questionnaires and the site visit observed existing selected new residential neighbourhoods. The surveys investigate the housing policy system, land use design layout regulations, and the implementation of public facilities and services. These are used to support the argument on the development process for new residential neighbourhoods in the Sultanate of Oman.

Table 5.1: Research questions

Research sub-questions	Detail questions
How should the citizens' housing service be supplied, financed and managed?	Who should receive the residential land plots, households or individuals?
	What types of housing finance need to be offered?
	How housing programmes should be administered?
What type of national strategic plans and land use design standards should be applied as a basis for planning new residential neighbourhoods?	Is it important to provide strategic spatial plans as a basis for planning the new housing areas?
	Who should supervise and approve strategic spatial plans?
	How can land use design standards be used in development of new residential neighbourhoods?
	Who should design, supervise and approve the new residential neighbourhoods?
What types of public facilities and services do citizens need to have in place before new residential neighbourhood plots are distributed, and how might this process be coordinated, financed and operated?	What are the types of public facilities and services that citizens need before new residential neighbourhood plots are distributed?
	Is the coordination of different development stages between related organisations sufficient to develop the new neighbourhoods?
	How are the public facilities and services financed and operated for successful development?

The results obtained will be used to answer the research questions that are shown in Table 5.1; it will also be considered to evaluate the proposed obstacles which face the development process for new residential neighbourhoods and propose suggestions to improve them (see objective 3, key question 3 and sub-questions in section 1.3 in Chapter 1).

This chapter is divided into five sections. In section 2 are the findings and analysis of the housing policy system obstacles that might affect the development process and who should receive residential land plots, what type of housing finance should be offered and how housing programmes should be administrated. Section 3 contains the data findings and analysis of the land use design layout regulation obstacles that slowing development process and the importance of providing strategic spatial plan and who should provide, supervise and approve it. Also, include the employment of land use design standards and who should design, supervise and approve the new residential neighbourhoods. Section 4 is about the finding and analysis of the provision public facilities and services obstacles include the types of the main public facilities and services needed and their coordination, finance and operation. Section 5 is the summary of this chapter.

5.2 Housing policy system

This investigates and analysis the housing policy system obstacles and suggestions to improve its housing supply, housing finance and housing administration to answer the research questions related mentioned in Table 5.1. This is gathered from professional experts' interviews, citizen questionnaires and site visit observations.

Regarding the obstacles related to housing policy system, granting residential land plots targets the individuals instead of households, the majority of professional experts see this constraining accelerating housing the household, few only see it not. All of the public facilities and services experts accepted this, as did most of the urban planners, housing experts, community experts, and private developers. However, one of housing experts and one of private developers disagreed.

The professional experts see residential land plots granted to individuals is one of the causes for slowing the development process of new residential neighbourhoods. This is because individuals are not ready to build houses.

Most of professional experts agreed that the choices of housing finance is limited, and the available housing loans is with high interest rate, while some of the professional experts

see it can be enough to serve the citizens' requirement. All of the community experts agreed that the housing choices are limited and that the interest rate on housing loans is high, private developers, urban planners, housing experts and public facilities and services experts all confirmed this. One urban planner, one housing experts and two private developers did not agree with this summary of circumstances, stating that the current situation is reasonable.

From the site visit observations, it emerged that several houses built were built by their owners with the assistance of private contractors. They were financed by the owners themselves, by the commercial banks and with housing loans from the Housing Bank. This is a subsidised finance approach provided by a single finance organisation. The small number of houses built indicates that the subsidised housing approach is very limited.

The administration of housing types and housing finance is mainly carried out by government organisations with limited private sector housing activities. This agreed by most of professional experts and disagreed by some of them. The majority of the private developers, community experts, urban planners, housing experts and public facilities and services experts accepted this. However, two of the housing experts and one each of the public facilities and services experts and community representatives disagreed (see Figure 5.1).

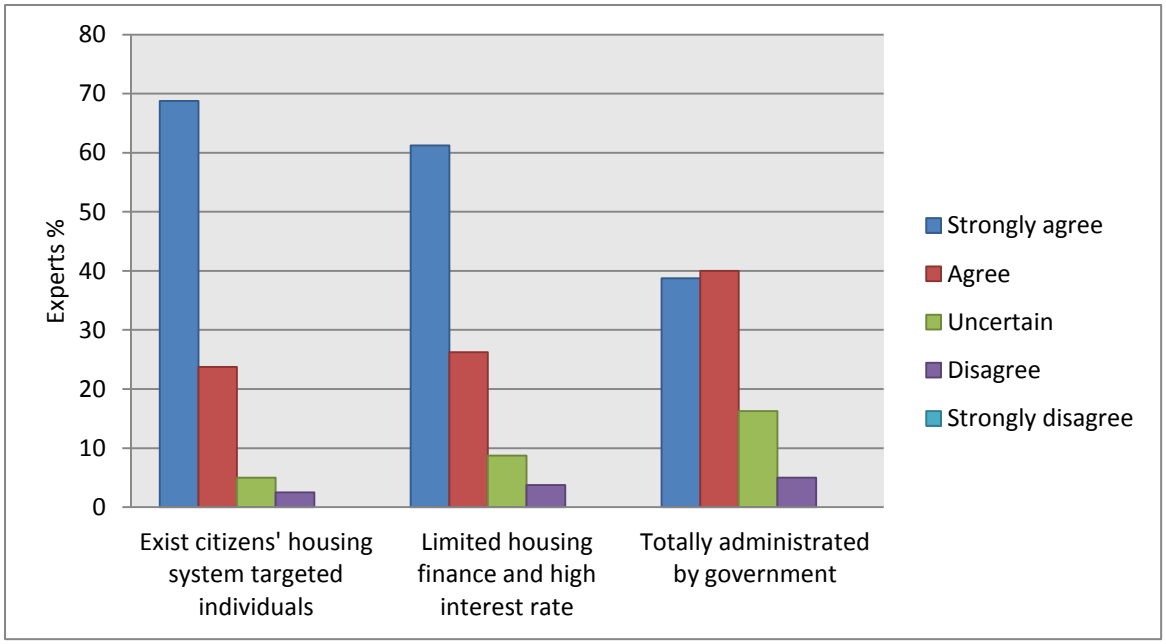

Figure 5.1: Professional experts rating about the obstacles face development process in relation to existing housing policy system.

The site visit to selected existing new residential neighbourhoods found that in all three City 1 samples, all the residential land plots were distributed to citizens. Meanwhile the built plots numbered 12% in city centre sample, 4% in the suburb sample and 27% in the rural sample. In each of the City 2 samples, all the residential land plots were distributed to citizens and the built plots comprised just 2% of the city centre sample, 8% of the suburb sample and 1.2% of the rural sample (see Table 5.2).

Table 5.2: Delivered and built land plots in the neighbourhoods selected for the site visit

Neighbourhoods	F/ P	City centre sample		Suburb sample		Rural sample	
		Delivered	Built	Delivered	Built	Delivered	Built
City 1	F	972	119	1205	48	70	19
	P	100	12	100	4	100	27
City 2	F	1634	36	593	46	84	1
	P	100	2	100	8	100	1.2

F: number of the residential plots; P: percentage of the residential plots

All the residential land plots in the new residential neighbourhoods studied had been distributed to individual citizens through the existing housing policy system without public facilities and services provision. It was clear that the majority of the plots visited had not been built on and that citizens were not interested in building on them. This might be because the owners are individuals who are not required to provide houses at this stage of their lives or are experiencing some delays in acquiring housing loans.

According to the findings above, the existing housing policy system targets individuals by granting them residential land plots instead of granting plots to households. It focuses on just one type of housing financing, offering high interest housing loans through the Housing Bank only and a system totally administrated by government organisations. This might be one of the obstacles impeding the development process of new residential neighbourhoods.

5.2.1 Who should receive the residential land plots, households or individuals?

The great majority of the professional experts and citizens' respondents agreed that households rather than individuals should be given precedence in granting residential land plots. The findings shown in Figure 5.2 suggest that granting head of the household role to a man or woman for a residential land plot is appropriate with the exception of one expert. Also, most citizens also agreed, with just nine uncertain. However, the existing

housing policy regarding granting plots to individuals was disapproved of by the majority of experts.

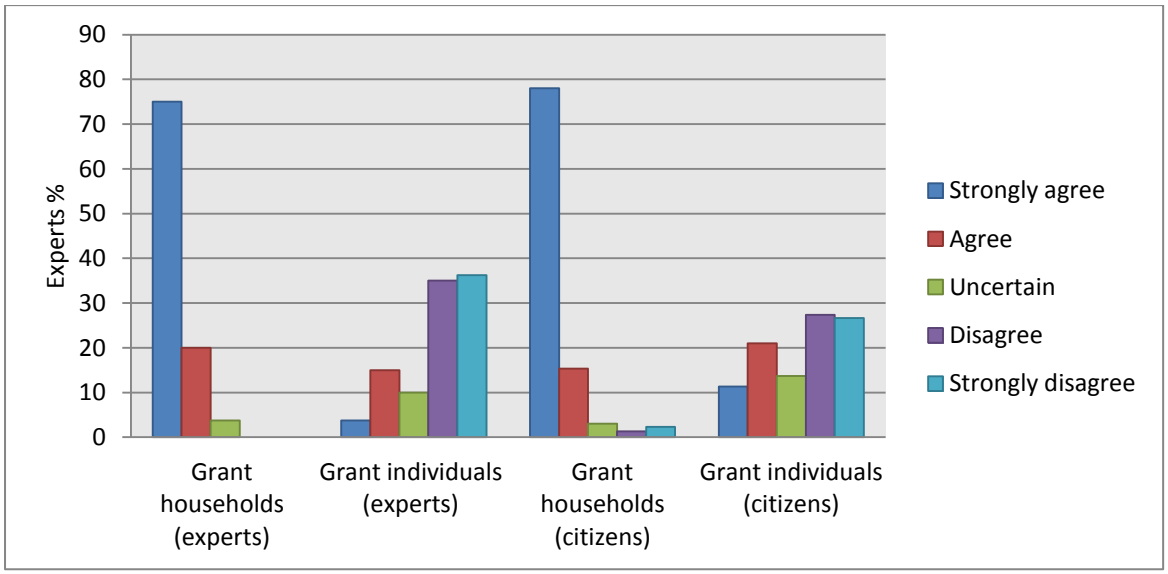

Figure 5.2: Professional experts and citizens rating about who should be granted residential land plots.

According to the analysis by professional experts and citizens groups, the professionals believed that residential land plots should target households and not individuals. Table 5.3 shows that all the urban planners, housing experts and private developers agreed that land should be granted to households and the majority of the community experts, and the public facility and services experts also agreed with this. Those who disagreed were one public facilities and services expert. Conversely, professional experts do not agree that residential land plots should be granted to individuals. Although several urban planners and housing experts agreed that individuals should receive land plots all the other professional expert groups disagreed with this position.

The respondents from both citizens groups (i.e. those who had been granted and those who had applied for housing land plots) agreed with a high percentage that land should be granted to households. Only eight citizens of those who had been granted plots, and fourteen who had applied disagreed. Granting residential land plots to individuals was less percentage accepted by the respondents, while disagreed by the majority. However, for those who had applied for land, opinion was more divided. Although, overall, the citizens' responding did not accept the idea of granting housing land plots to individuals, the citizens who had applied for land were more likely to agree with this, than those who had been granted land. This may be because most citizens who had applied recently were single and younger (see Table 5.3).

Table 5.3: Professional expert respondent groups views about who should be granted residential land plots.

Respondent Groups		F/P	Grant head of households		Grant individuals	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	16	0	5	9
		P	100	0	31.25	56.25
2	Housing experts	F	16	0	4	9
		P	100	0	25	56.25
3	Public facility and service experts	F	13	1	2	13
		P	81.25	6.25	12.5	81.25
4	Private developers	F	16	0	2	13
		P	100	0	12.5	81.25
5	Community representatives	F	15	0	2	13
		P	93.75	0	12.5	81.25
6	Citizens granted land	F	140	4	37	92
		P	93.33	2.67	24.67	61.33
7	Citizens who had applied for land	F	140	7	60	70
		P	93.33	4.67	40	46.67

F: number of respondents in group; P: percentage of the total number in the sample

The discussion regarding the housing types of grants of residential land plots to households or individuals, all the respondents agreed that residential land plots should be granted to the households; male or female (see Figure 5.3).

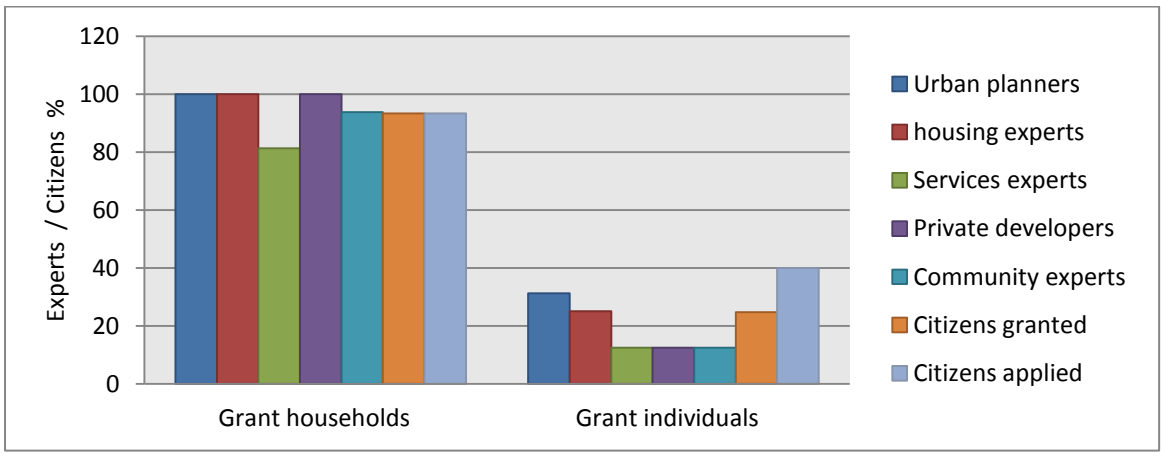

Figure 5.3: Professional expert and citizens respondent groups agreed rate about granting households or individuals.

They said that the housing policy system should target families by implementing residential neighbourhoods with public facilities and services. This reflects the need to provide a housing policy system that targets citizen households. The existing housing system of granting land to individuals was opposed and this clearly indicates that the existing system is not accepted by professional experts and citizens. Those with dissenting opinions thought that granting land to individuals will improve the land market by increasing the supply and so will reduce prices.

The findings also suggest that residential land plots should be granted to households, and not to individuals.

5.2.2 What types of housing finance need to be offered?

The professional experts and citizens were favour of granting the household a government subsidy interest housing loan to build or to buy a completed house (see Figure 5.4).

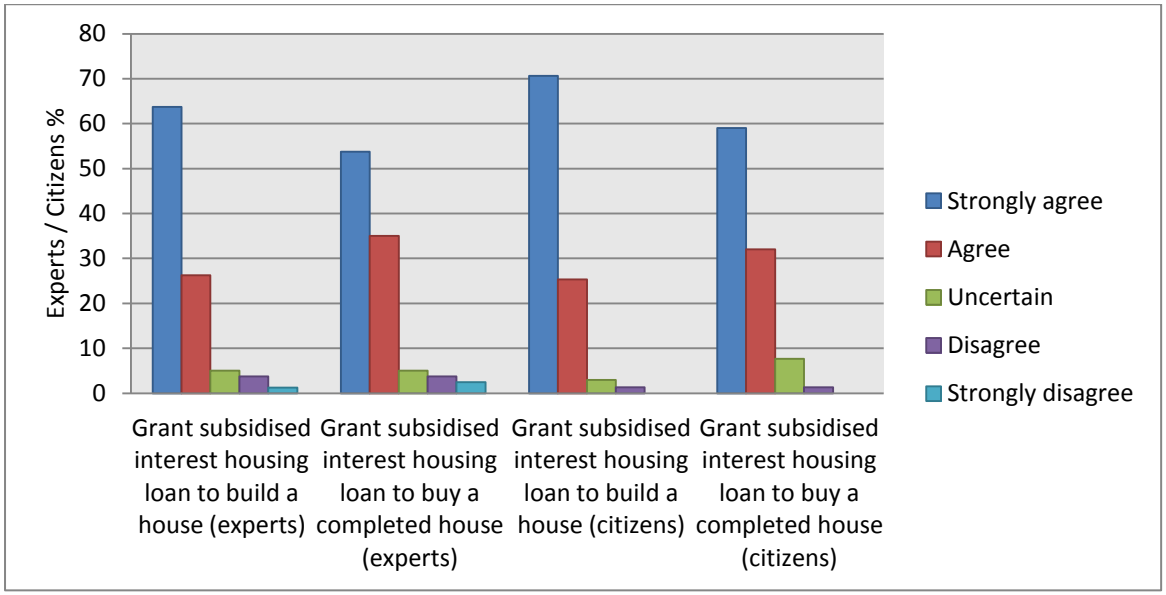

Figure 5.4: Professional experts and citizens rating about the choices of housing finance

In relation to this, most professional experts agreed with the suggestion to grant households a government subsidised interest based housing loan to build their houses. Only four experts were uncertain and another four experts disagreed. Also, almost all the citizens who responded agreed, only nine were uncertain and four citizens disagreed. In relation to the idea of a government subsidised interest housing loan to be granted to allow householders to buy houses from developers was approved by a high rate among experts, but four experts were uncertain and one disagreed. The majority of citizens agreed to this, and only four citizens disagreed.

The preferred form of housing finance, from the professional experts' respondent and citizen groups' point of view is for finance to be provided for owners to build houses or buy a completed house from developers (see Table 5.4).

Table 5.4: Professional expert and citizen respondent groups' choices with regard to approaches to housing finance

Respondent Groups		F/P	Build house		Buy house	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	15	0	15	0
		P	93.75	0	93.75	0
2	Housing experts	F	14	1	14	1
		P	87.5	6.25	87.5	6.25
3	Public facility and services experts	F	12	2	12	2
		P	75	12.5	75	12.5
4	Private developers	F	15	1	15	1
		P	93.75	6.25	93.75	6.25
5	Community representatives	F	15	1	15	1
		P	93.7	6.25	93.75	6.25
6	Citizens granted land	F	144	1	136	2
		P	96	0.67	90.67	1.33
7	Citizens who had applied for land	F	144	2	137	2
		P	96	1.33	91.33	1.33

F: number of respondents in group; P: percentage of the total sample number

Urban planners, private developers, and community experts all agreed regarding the desirability of housing loans to build or buy a completed house from a developer. Housing experts also agreed to both these proposals, as did public facilities and services experts. Both groups of citizens who had been granted land, and those who had applied for land found the idea of building their own houses, using private contractors, and government subsidised housing loans acceptable. This was the first option to receive agreement from all groups. The second option was to buy a completed house from developers, using a government subsidised housing loan.

At the present time the government is granting subsidised interest housing loans through the Housing Bank. The applications take three years to process because there is a large waiting list.

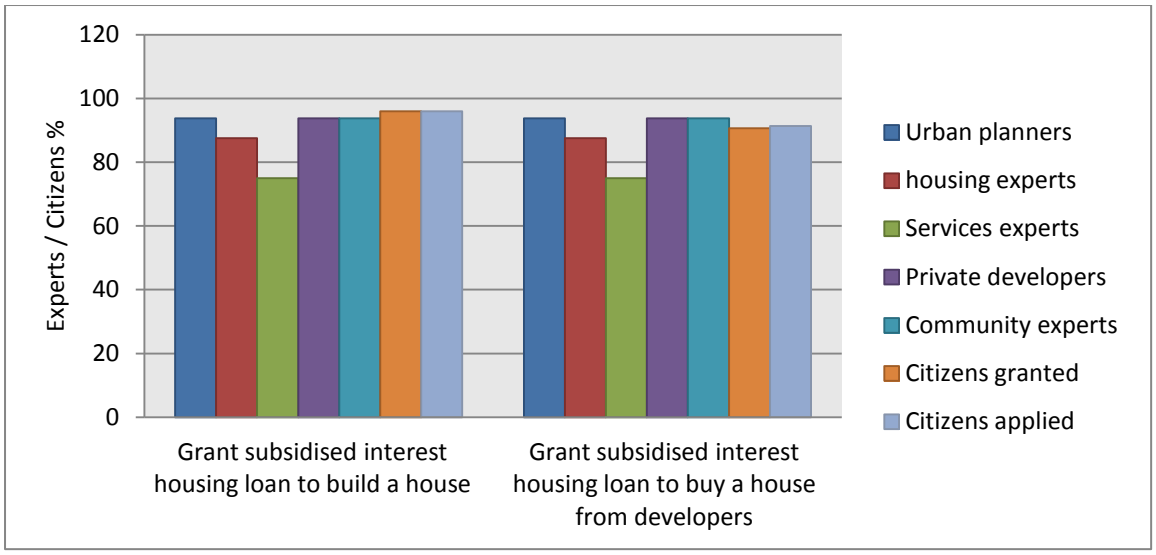

Figure 5.5: Professional expert respondent groups' agreed rate about approaches to housing finance

As shown in figure 5.5, the respondents agreed about the need to provide two options for types of loan; to build a house or to buy a completed house from developers. They believed that the people should choose between completed houses or open lands to build their own houses. They suggested that the houses should be constructed by developers and be paid for by the government then delivered to the citizen.

From the information presented, the respondents stated that both options of housing finance should be offered; i.e. a subsidised housing loan to build a house or the option to buy a house from developers.

5.2.3 How housing programmes should be administered?

Professional experts and citizens thought that the housing programs should be managed by the government in coordination with the private sector.

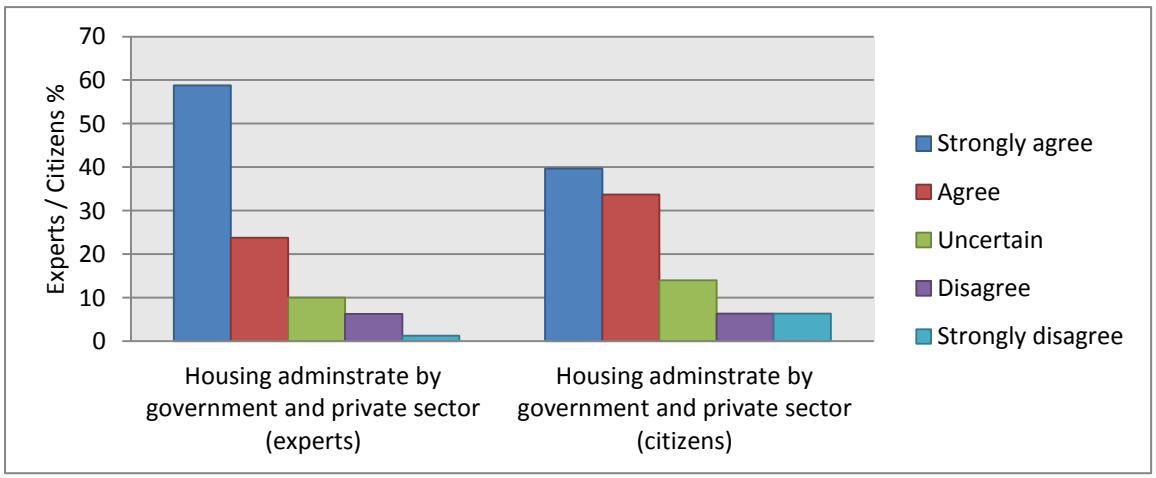

Figure 5.6: Professional experts and citizens rating about the choices of housing administrate.

This was strongly agreed to most of the experts; some were uncertain and a few disagreed. The majority of citizens agreed and a few were uncertain or disagreed (see Figure 5.6).

Professional experts and citizen respondent groups thought that housing programmes should be administered by government authorities in coordination with the private sector. The percentage of expert and citizen respondents agreeing on this point was greater than those disagreeing (see Table 5.5).

Table 5.5: Professional expert and citizen respondent groups' choices with regard to approaches to housing administrate.

Respondent Groups		F/P	Administered by government and private sector	
			Total Agreed	Total Disagreed
1	Urban planners	F	12	1
		P	75	6.25
2	Housing experts	F	14	1
		P	87.5	6.25
3	Public facility and services experts	F	15	0
		P	93.75	0
4	Private developers	F	15	0
		P	93.75	0
5	Community representatives	F	10	4
		P	62.5	25
6	Citizens granted land	F	106	24
		P	70	16
7	Citizens who had applied for land	F	114	14
		P	76	9.33

F: number of respondents in group; P: percentage of the total sample number

The professional experts believed that housing programmes should be administered through the government, and that houses should be built by developers and be paid for by commercial banks on subsidised interest housing loans to speed up housing loans. Those who disagreed believe the administration work should be done totally by the government organisations. The respondents agreed that the management of these programmes should be done through contractors, developers and finance organisations, such as commercial banks and finance agencies.

The majority of professional experts agreed that there were no completed houses available in the market, although some experts said there is no demand for completed houses because most people want to design and construct their houses by themselves as the housing loans delivered by government Housing Bank. But others felt that can be solved by involving private developers in housing sector.

The findings, as shown in Figure 5.7, reveal that the management of housing programs can be effectively achieved by government organisations in coordination with the private sector, especially by involving financing agencies and housing developers.

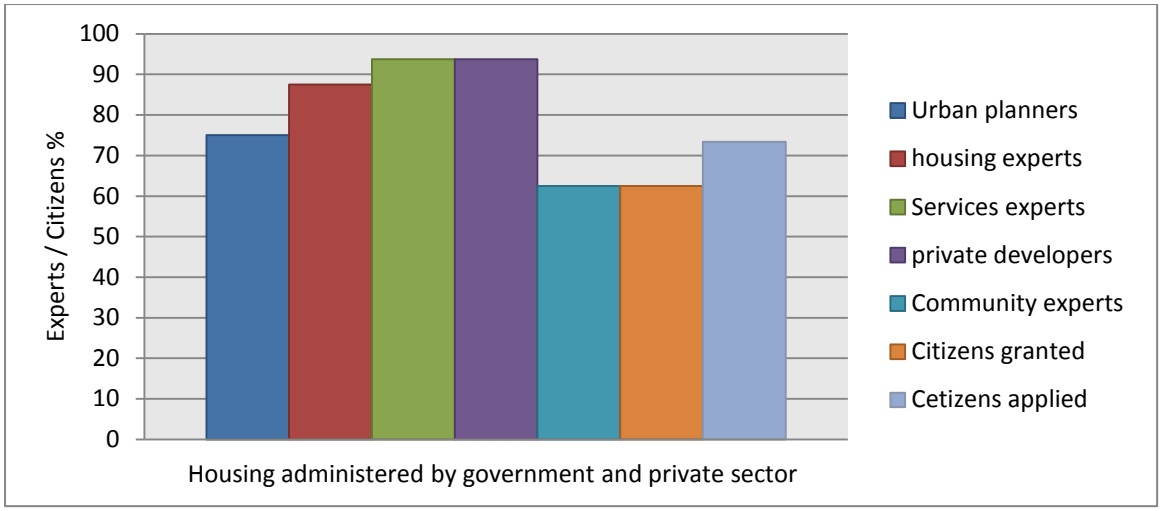

Figure 5.7: Professional expert and citizens respondent groups' choices about housing administrated by government and private sector

5.3 Land use design layout regulations

The land use design layout regulations obstacles in relation to using spatial strategic plans and the use of land use design standards investigated and analysis with professional experts and observed in the sites visited.

As shown in Figure 5.8, the absence of strategic spatial plan, the majority of experts think it is one of the obstacles, while few of them see the practices of long and short development plans which approved by government is enough and can take place of strategic spatial plans. From the professional expert's interview, all of the public facilities and services experts interviewed have agreed that the absence of national strategic spatial plans is one of the causes facing the development of new housing areas.

Almost all urban planners and community experts agreed and none disagreed. The housing experts who agreed were highly rated and of the same rating as agreed by private developers. One of housing experts and two of private developers disagreed.

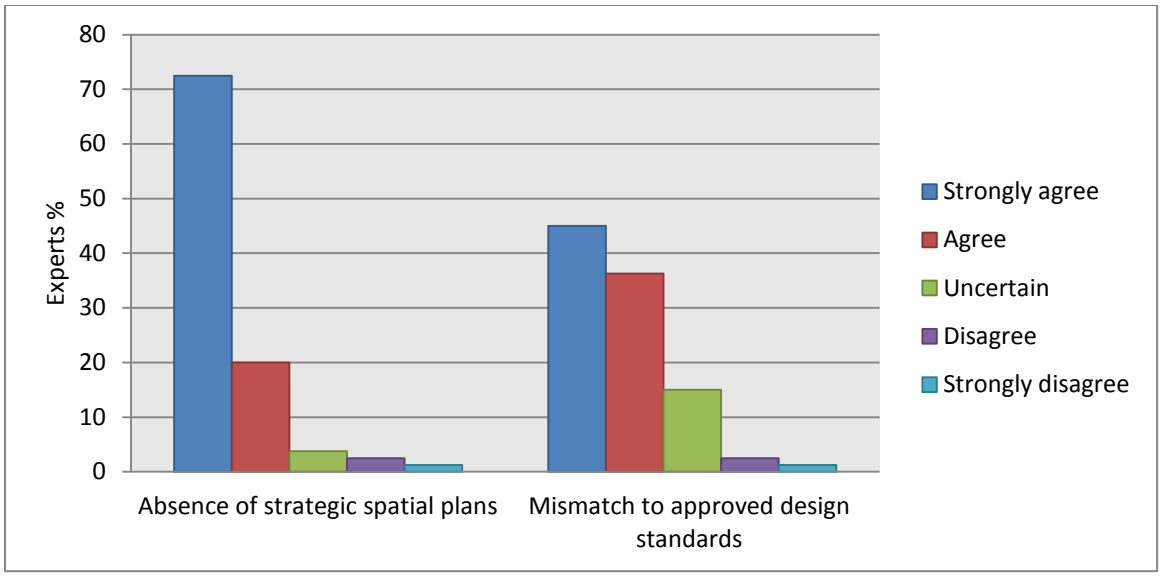

Figure 5.8: Professional experts rating about the absence of strategic spatial plans and mismatch to approved design standards.

The new residential neighbourhood locations visited were chosen by the Ministry of Housing town planners only after they had revised the local spatial maps of the cities. These maps were implemented by their staff, and were not based on any approved strategic spatial plans. Moreover, no specific master plans or housing zones had been approved for these cities. Some of the planned areas visited were located near to existing housing areas and others were far from urban areas and implemented on government-owned land. This indicates that strategic spatial planning was absent when implementing these new residential neighbourhoods.

The design layout of new residential neighbourhoods mismatch to approved design standards; this was accepted by most professional experts and rejected by some of experts (see Figure 5.8). The private developers and community experts agreed with higher rates; housing experts and public facilities and services experts also agreed. Only one of the urban planners disagreed.

The new residential neighbourhoods visited were carried out by Ministry of Housing planners. Organisations such as the Electricity Company, Water Authority, Telephone Company, Environment Authority, Transport Authority and Traffic Authority were all invited to approve the new planned areas after the design phase but prior to final approval. The Ministry of Housing designed the plot uses and marked them on the ground. The design was arranged to provide more housing plots with fewer plots for facilities. There was no design layout for service routes, only roadways, and public facilities and services were provided only after the plots were delivered. Generally, the image of the design layout for new housing areas on site differed from that depicted on

paper. All the new residential neighbourhoods have land plots marked on the ground only. The roads and pathways were not marked on the ground, which had caused some change to the road centre lines during construction. The routes for utilities were not marked, with the result that they were planned and approved separately. The planned water-flooding channels, as shown on the drawing were not constructed on the ground, which affected the residential land plots. The design was also based on low-density land use planning, indicating that approved Oman urban planning standards are not fully applied when designing new residential neighbourhoods.

According to the results presented above, there are no existing approved strategic spatial plans, and approved design standards have not been used to implement new residential neighbourhoods.

5.3.1 Is it important to provide strategic spatial plans as a basis for planning the new housing areas?

Regarding the provision of strategic spatial plans, the majority of professional experts agreed that it is important to provide strategic spatial plans. Regarding the need to provide master plans with housing zones, all the professional experts agreed (see Figure 5.9).

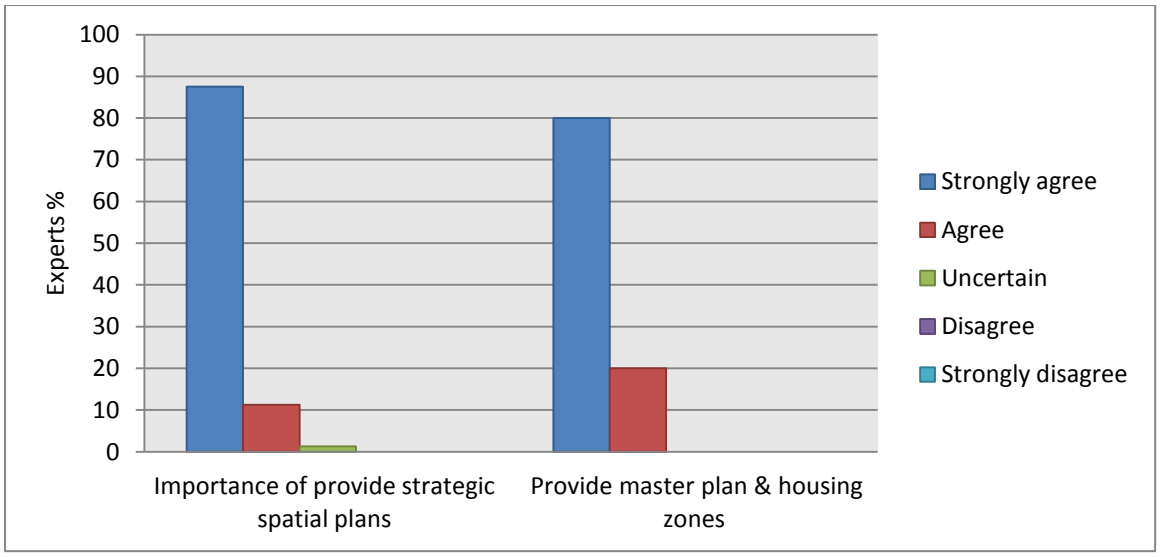

Figure 5.9: Professional experts rating about importance of provide strategic spatial plan, master plan and housing zones.

The responses from all the professional expert groups, as shown in Table 5.6 indicate that they considered it very important to provide strategic spatial plans. All the groups of professional experts and respondents agreed. They also all agreed on the importance of creating a master plan with housing zones.

Table 5.6: Professional expert respondent groups views about need to provide the national spatial strategy plan and master plan with housing zones.

Respondent Groups		F/P	Need to provide national spatial strategy		Provide master plan with housing zones	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	15	0	16	0
		P	93.75	0	100	0
2	Housing experts	F	16	0	16	0
		P	100	0	100	0
3	Public facility and services experts	F	16	0	16	0
		P	100	0	100	0
4	Private developers	F	16	0	16	0
		P	100	0	100	0
5	Community representatives	F	16	0	16	0
		P	100	0	100	0

F: number of respondents in group; P: percentage of the total sample number

The professional experts believed that the implementation of a national strategic spatial plan and regional plans is the basis for urban development. They also added that the development of a national strategy could distribute development, balance the population and implement new housing areas. The experts who disagreed included one housing expert and two private developers, all of whom felt that existing development plans were sufficient to manage the housing sector. The experts believe that the strategic spatial planning can be used to evaluate the existing situation and plan for a better future through studying the potential of each governorate and its needs in different sectors, especially housing. They thought that this would enable a town planning law to be established, which would identify the most needed public facilities and services for each governorate and would help cooperation between the concerned organisations for better housing development. It would also formally recognize the population settlements in each area, and provide a combined plan for economic, social, environment and land uses. They added that the strategic urban plans will give each governorate its resources and better economic activities which would help in providing jobs for people and accommodation near their working places. This would lead to a policy that considers citizens' needs. They believe that will be the basis for any housing sector and the development of new residential neighbourhoods.

The need to provide master plans with housing zones was agreed by all professional experts. This indicates the importance of providing housing zones to implement new residential neighbourhoods. The experts were convinced of the importance of having master plans and housing zones. This is because the master plans will allocate different land uses zones which will help planners to work on clear, detailed plans for housing. Also, they will help to situate the new projects in good locations. This will balance the use of resources required, including housing lands, for the present and the future. From the expert point of view they saw this as implementing the exact amount of housing required and regulating the future development and plans to provide the public facilities and services that are needed. They were sure that having housing zoning plans will stop unplanned mixed land uses, and reserve the land for its use as designated in the master plan, especially for the main urban projects. Also, by working on master plans, land use planning will meet people's requirements in terms of public facilities and services, avoiding flooding areas and reducing the amount of the land required for housing. The master plan will direct town land use planning and force the all organisations to work within the approved plan. It will set clear future planning and financial policies for housing.

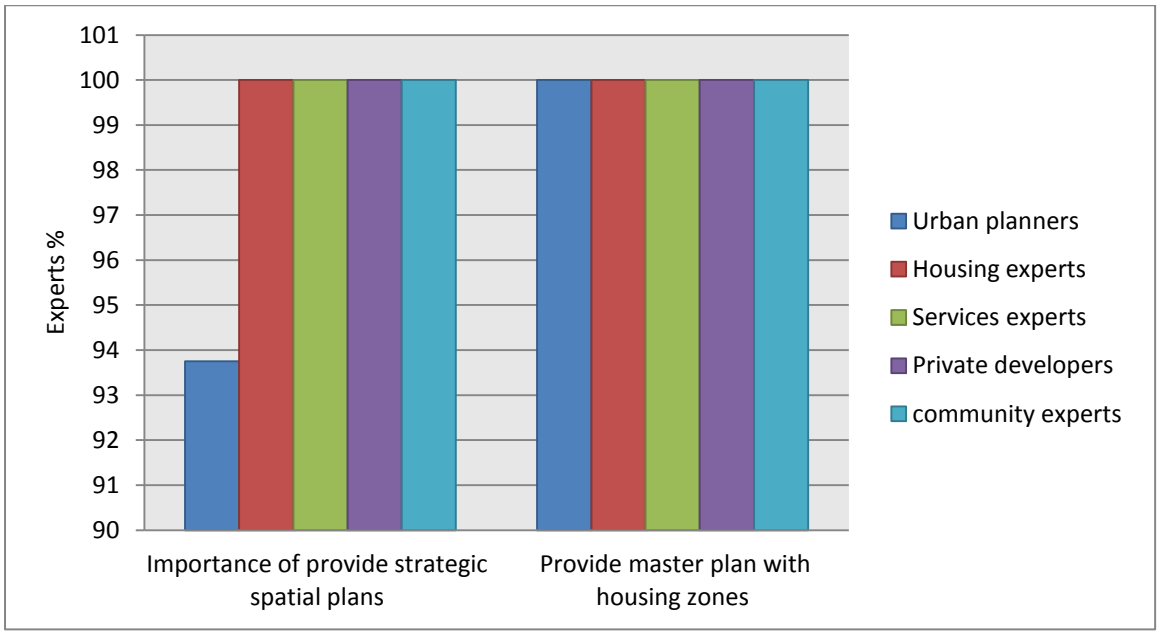

Figure 5.10: Professional expert respondent groups' views about providing strategic spatial plan, master plan and housing zones.

From the information presented respondents thought that it is important to provide national strategic spatial plans, regional and master plans with housing zones (see Figure 5.10).

5.3.2 Who should supervise and approve strategic spatial plans?

The suggestion that the supervision of strategic spatial plans should be undertaken by the Higher Planning Council was agreed to by almost all professional experts and disagreed with by three experts and four experts were uncertain. The professional experts agreed that the Minister's Council, State Council and Alshorra Council should approve strategic plans, and only four experts disagreed (see Figure 5.11).

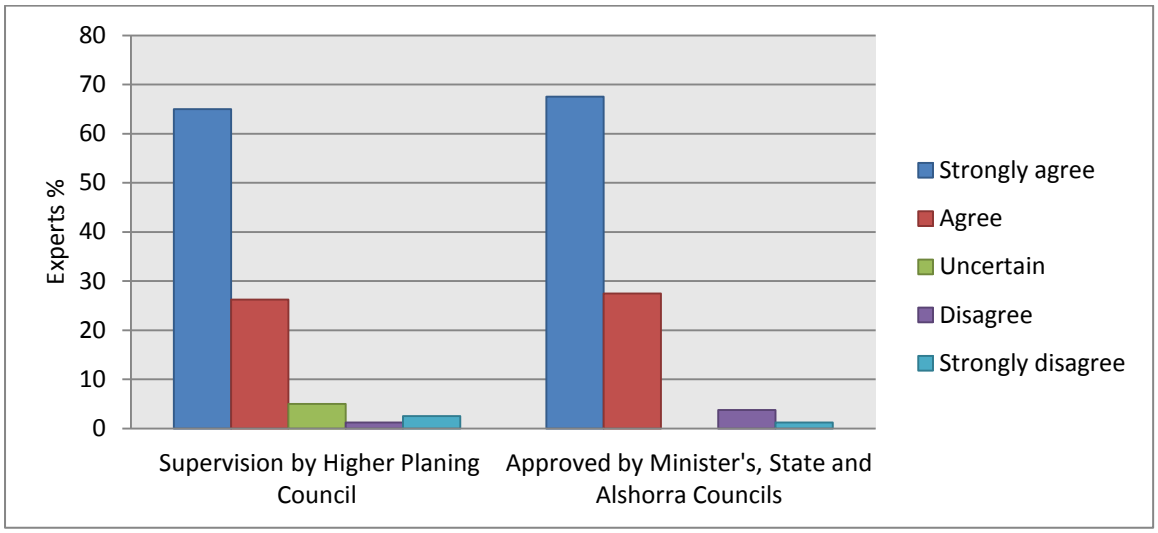

Figure 5.11: Professional experts rating about supervise and approval of strategic spatial plans

All the professional experts concurred that the Higher Planning Council should supervise the implementation of strategic spatial plans. Based on the interviews, just one public facility and services experts and one private developer disagreed (see Table 5.7). This shows the majority of the professional experts preferred the implementation of strategic spatial plans to be supervised by the Higher Planning Council. The Higher Planning Council is the ministerial council executive organisation, which studies and proposes economic, social, urban and environmental plans.

The professional experts suggest that the Higher Planning Council should supervise the implementation of strategic plans, because the Higher Planning Council is represented by different housing related organisations, and is thus the most suitable organisation to understand people's needs with regard to housing and public facilities and services. From among all the interviewees, only one of the public facility and services experts and one of the private developers disagreed with this view, on the basis that there is no private sector representative in the Higher Planning Council. They requested that other concerned organisations be included in the supervision steering committee, such as private sector

representatives and other organisations, which currently have no representation on the Higher Planning Council.

Table 5.7: Professional expert respondent groups views about supervise and approve the national spatial strategic plan.

Respondent Groups		F/P	Supervise by Higher Planning Council		Approved by Minister's Council, State Council and Alshorra Council	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	15	0	12	1
		P	93.75	0	75	6.25
2	Housing experts	F	15	0	13	0
		P	93.75	0	81.25	0
3	Public facility and services experts	F	13	1	13	1
		P	81.25	6.25	81.25	6.25
4	Private developers	F	14	1	14	1
		P	87.5	6.25	87.5	6.25
5	Community representatives	F	16	0	12	1
		P	100	0	75	6.25

F: number of respondents in group; P: percentage of the total sample number.

The majority of the respondents thought that strategic planning should be based on site observations and accurate data, and should be worked out with Omani experts to avoid misunderstandings relating to Omani culture or community activities. They also thought that organisations concerned with housing polices, public facilities and services should be involved with consultants working on strategies and regional plans, because such organisations would then be able to implement these strategies on the ground upon approval.

Regarding the suggestion that the approval of strategic spatial plans should be by Ministers' Council, State Council and Alshorra Council, the respondents agreed to this with a high percentage. Only one each of the urban planners, public facility and services experts and private developers disagreed (see Table 5.8). This indicates that in the opinion of professional experts the three councils would be expected to approve all strategic spatial plans. The new government regulations placed all three councils

(Ministers Council, State Council and Alshorra Council) in the position approve national developmental plans, so spatial strategic plans have to be approved by them. The respondents agreed on this. They believed each council represented a part of the country. On the other hand, one respondent from each of the urban planners, public facility and services experts and private developers disagreed on the basis that it might take a long time to gain approval and that it would be sufficient to gain the approval of related organisations.

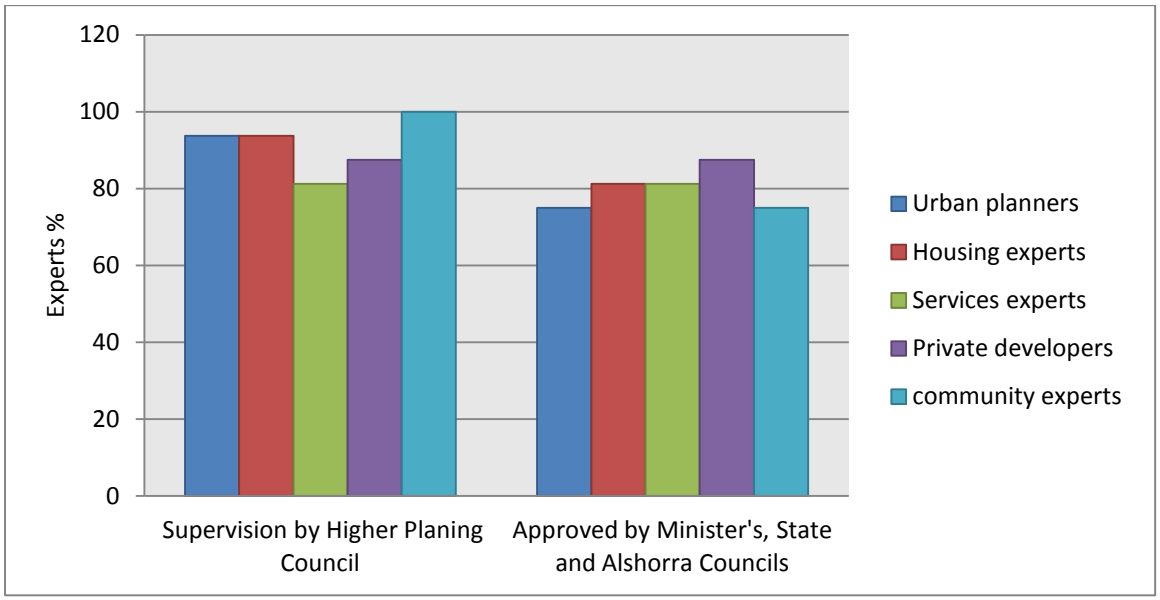

Figure 5.12: Professional expert respondent groups' views about supervise and approval of strategic spatial plans.

The findings above, and those shown in Figure 5.12, suggest the provision of strategic spatial plans could realistically be supervised by the Higher Planning Council and approved by the Minister's Council, the State Council and the Alshorra Council.

5.3.3 How can land use design standards be used in development of new residential neighbourhoods?

The use of approved Oman urban planning standards for designing the land use layout of new residential neighbourhoods was discussed with professional experts. As shown in Figure 5.13, the majority of the professional experts agreed on the necessity of using approved standards when designing the layout of new residential neighbourhoods; although, seven experts were uncertain and four experts disagreed. In relation to involving sustainable urban and environmental regulations in the design, almost all the professional experts agreed that this was necessary, although one expert was uncertain.

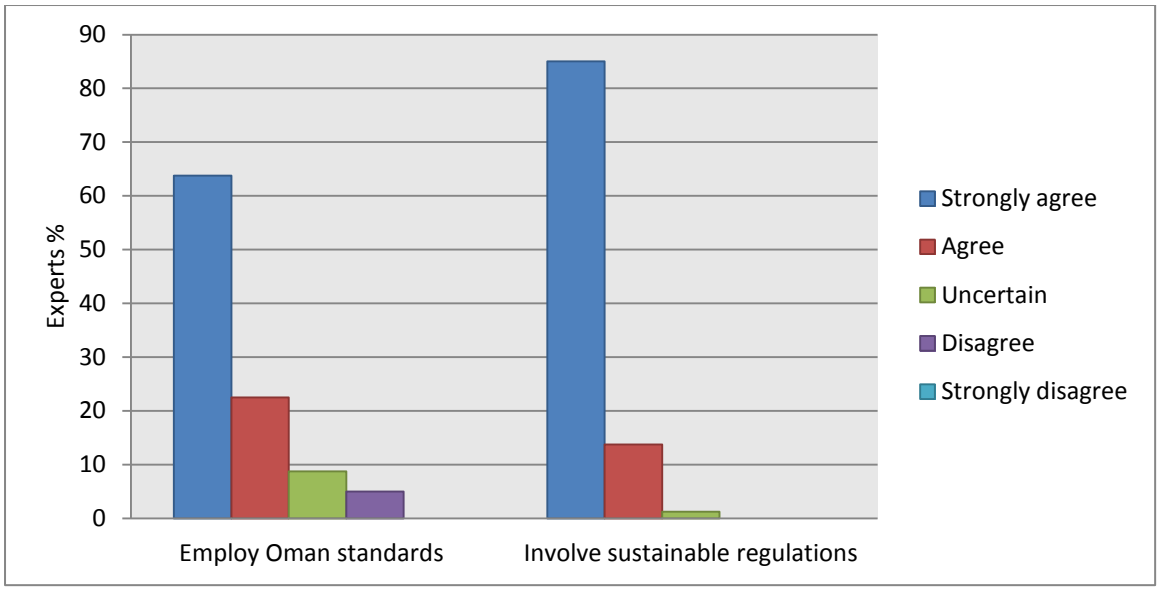

Figure 5.13: Professional experts view about employ Oman land use design standards and involve sustainable regulations.

The analysis of the professional expert groups results are as shown in Table 5.8. Designs as per the Oman approved design standards were agreed by the majority of urban planners, community experts, housing experts, public facilities and services experts and private developers. Those professionals who disagreed were two private developers, one housing expert, and one public facility and services expert.

Table 5.8: Professional expert respondent groups views about employing land use design standards and involve sustainable regulations

Respondent Groups		F/P	Employ Oman urban planning standards		Involve sustainable regulation	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	15	0	15	0
		P	93.75	0	93.75	0
2	Housing experts	F	14	1	16	0
		P	87.5	6.25	100	0
3	Public facility and services experts	F	13	1	16	0
		P	81.25	6.25	100	0
4	Private developers	F	11	2	16	0
		P	68.75	12.5	100	0
5	Community representatives	F	16	0	16	0
		P	100%	0	100	0

F: number respondents in group; P: percentage of the total sample number

The importance of engaging in urban sustainable design and observing environmental regulations, leading to a compact design in which a walking distance of 300m to public facilities is considered ideal was acceptable to all groups of experts without exception. The expert suggests that the design layout of new residential neighbourhoods should be done in accordance with Oman urban planning standards, involving sustainable urban and environmental regulations. The need for compact design, within a walking distance of 300m of the public facilities was agreed by professional experts. They believed that this will increase walking and cycling and minimise travel by car. This will lead to a healthy lifestyle for citizens. However, one of the community experts disagreed about compacted design because he wanted a wide corridor between houses. The integration of sustainable housing and environmental regulations in the design was accepted by all professional experts. Also, the need for services routes to be included in the design and approval was agreed all the professional experts. The lack of a public transport system and the production of renewable energy were discussed with the experts in the interviews and they accepted that these are issues facing the development process, because people have to travel by private cars. One private developer and one public services expert disagreed and said the private sector could work it out but that it would be uneconomic.

Some professional experts gave suggestions to be considered when designing new residential neighbourhoods. They said that the planners should be qualified and skilled enough to provide high quality land use design. They wanted to separate the internal roads that connect the houses from secondary roads that link the development to the main roads with more open spaces. They recommended that areas with apartments should be located away from areas with individual housing, and the design should be suitable for all ages and for the disabled. The design should follow the planning regulations relating to plot areas, layout and daily life activities that are appropriate for each governorate's lifestyle, culture and needs for public facilities and services. The design should also include drainage channels, walking routes and should accommodate different groups' lifestyles. The design should give clear building specifications and divide the space into plots of one storey, two stories and three stories, with plot areas of between 600m^2 to 1000m^2.

All required facilities and services should be provided within walking distance, to make people healthy and reduce car uses and save the environment. Differences in viewpoints occurred because the urban planners felt that designing layout on available flat areas is suitable even the land lost in designing is high. They said this was to make the land plots

safer from flooding. At the same time, the housing experts wanted a maximum number of plots to cover applications. The public facility and services experts wanted to minimise planned areas, for better services but private developers wanted to minimise the loss of land, which meant loss of profit.

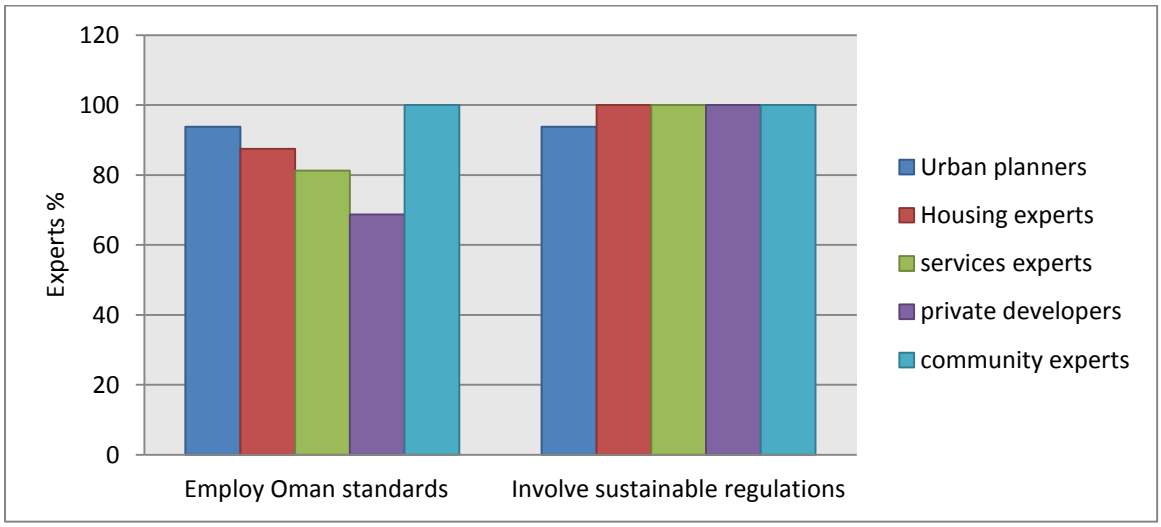

Figure 5.14: Professional experts respondent groups view about employ Oman land use design standards and involve sustainable regulations.

The finding suggests that, from the options presented to interviewees, professional experts thought there was merit in wider application of the planning standards (see Figure 5.14).

5.3.4 Who should design, supervise and approve the new residential neighbourhoods?

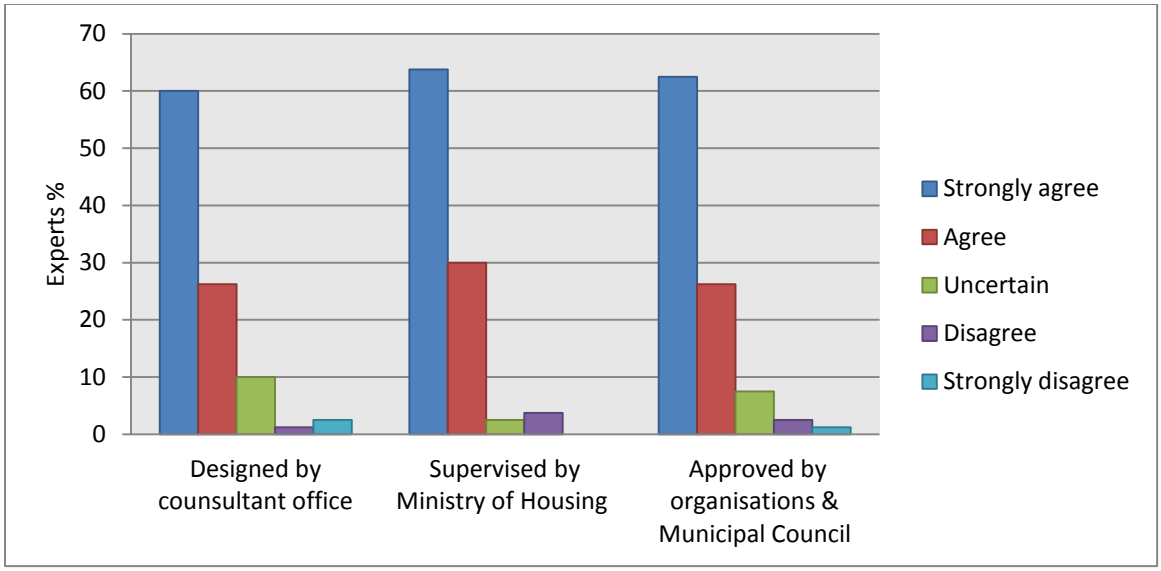

Figure 5.15: Professional experts view about design, supervise and approval of new residential neighbourhoods.

Regarding the suggestion that design should be carried out by a private engineering office, the majority of the experts concurred. Eight experts were uncertain and three disagreed. The Ministry of Housing was expected to supervise the design, and agreed with almost all the experts, although two experts were uncertain and three experts expressed disagreement. The suggestion that the design layout should be approved by relevant organizations and the local municipal council approved by most of professional experts, although six experts were uncertain and three experts disagreed (see Figure 5.15).

Table 5.9: Professional experts view about design, supervise and approval of new residential neighbourhoods.

Respondent Groups		F / P	Design by engineering consultants office		Supervision by Ministry of Housing		Approved by related organisations and Municipal Council	
			Total Agreed	Total Dis-agreed	Total Agreed	Total Dis-agreed	Total Agreed	Total Dis-agreed
1	Urban planners	F	11	2	16	0	13	2
		P	68.75	12.5	100	0	81.25	12.5
2	Housing experts	F	14	0	16	0	13	0
		P	87.5	0	100	0	81.25	0
3	Public facility and services experts	F	15	0	14	1	15	1
		P	93.75	0	87.5	6.25	93.75	6.25
4	Private developers	F	15	1	14	2	15	0
		P	93.75	6.25	87.5	12.5	93.75	0
5	Community representatives	F	14	0	15	0	15	0
		P	87.5	0	93.5	0	93.75	0

F: number of respondents in group; P: percentage of the total number respondents

As far as most of the professional experts were concerned, the design of the detailed plan for new residential neighbourhoods should be carried out by approved engineering consultants through tenders. The rates of agreement were high for use of consultants in the case of private developers, public facility and services experts, housing experts, community experts, and urban planners. From most of the professional experts' point of view the design of the detailed plan for new residential neighbourhoods should be by approved engineering consultants, through tenders. The experts who disagreed were two

urban planners and one private developer. They thought that it was better if done by Ministry of Housing planners to reduce the cost and because they distribute the land plots. Also, one of the private developers asked for some design work to be given to the developers because they build houses for sale in the market (see Table 5.9).

According to these interviews results, the design of new residential neighbourhoods should to be supervised by the Ministry of Housing. Almost all the urban planners, housing experts, community experts, public facility and services experts and private developers agreed with this proposal. However, two private developers and one of public facility and services expert disapproved. The design has to be supervised by the Ministry of Housing and other government concerned organizations; this was agreed by the vast majority of the professional experts. Two of the private developers and one of public facility and services experts disagreed, however, because they wanted the private sector to be included in supervision (see Table 5.9).

The majority of the professional experts agreed that the relevant government organisations and Municipal Council should approve the new residential neighbourhood designs. Disagreement came from two urban planners and one of public facility and services experts. The professional experts agreed that the relevant government organisations and Municipal Council should approve the new residential neighbourhood's design. Two urban planners and one public facility and services experts disagreed, on the grounds that they think that approval is a technical job and they want it to be conducted by a related organisation (see Table 5.9).

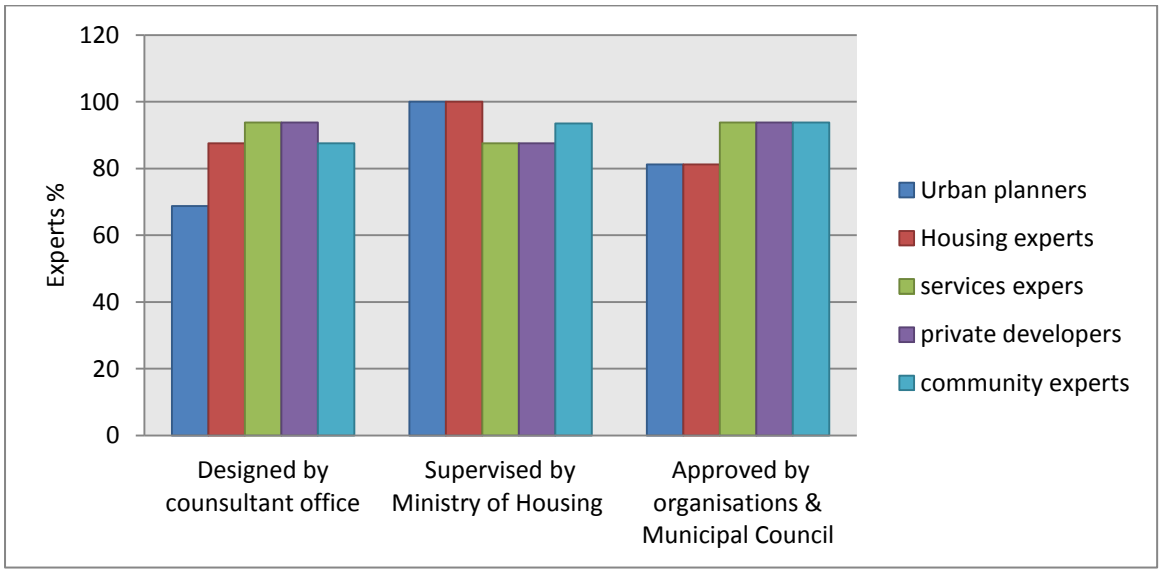

Figure 5.16: Professional expert respondent groups views about design, supervise and approval of new residential neighbourhoods.

According to the professional experts, the new residential neighbourhoods design layout could be implemented by a private engineering consultant office, supervised by the Ministry of Housing and approved by relevant organisations and the Municipal Council.

5.4 Implementation of the public facilities and services

The existing plan for the implementation of public facilities and services is not sufficient and defined as one of the obstacles face the development of new residential neighbourhoods.

The investigation and analysis showed a lack of public facilities and services, as noted by most of the professional experts. Disagreement on this issue was expressed by two private developers and two from public facilities and services experts. The limited coordination between concerned organisations was also noted by the majority of professional experts. Only one of private developer disagreed on this point (see Figure 5.17).

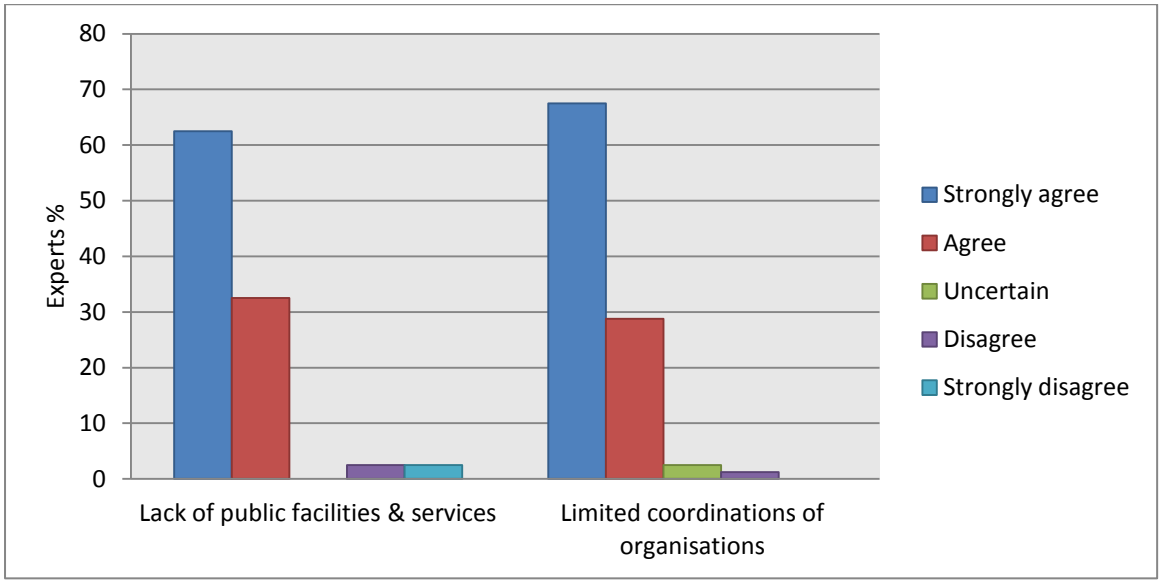

Figure 5.17: Professional experts view about the lack of implementing public facilities and services.

In the case of the new residential neighbourhoods visited, the public facilities and services provided were developed after construction of the houses. Government public facilities were not provided as needed, although the municipality developed some roads. There had been no privately owned public facilities developed in any of the studied cases. Regarding public services provision; the relevant organisations delivered electricity, mobile phone and waste collection in all cases. A water network was not accessible and so water is received water from tankers. There is no public sewage network in any of the planned areas, so sewage is collected in each households' cemented holding tank and then

collected by tankers for delivery to a central treatment station. There was no telephone network or postal services are available at the sites.

The government public facilities are financed and operated by the appropriate government organisations. Privately-owned public facilities are financed and operated by the private sector. The electricity, mobile phone, telephone lines and post office services are all financed and operated by government investment companies, while other public services, such as waste collection, water, and sewage are financed and operated by relevant government organizations. All the figures collected from the site visit regarding the provision of public facilities and services prove that the coordination, financing and operating of the public government facilities and other public services depends on their plans and budgets based on the houses constructed, and not on a profit basis. Also, the private facilities and government public investment services both depend on the supply and demand profit basis.

The above findings reveal a lack of provision of public facilities and services in the new residential neighbourhoods resulting from limited coordination between the relevant organisations.

From the above findings, it might be there is lack in provision of public facilities and services in the new residential neighbourhoods in relation to providing public facilities and services and with regard to the limited coordination of relevant organisations.

5.4.1 What are the types of public facilities and services that citizens need before new residential neighbourhood plots are distributed?

Regarding the needs to provide the main public facilities and services for new residential neighbourhoods before residential land plots are distributed, almost all professional experts agreed to do that, only one expert uncertain. To answer the question above, the public facilities and services were divided into three parts government public facilities, private public facilities and public services.

As shown in Table 5.10, the professional experts agreed that the government facilities that should be delivered before distributing plots in the new residential neighbourhoods to citizens are, in order, a prayer places, roads, school, parks and play ground, health centre, a social hall, a police and fire station and a graveyard. The mean rates for their views ranged between 4.98 and 4.2, the standard deviations between 0.16 and 1.14.

Table 5.10: Professional experts view of order for providing government public facilities

Categories			Order	Mean	Standard deviation
Government public facilities	1	School	3	4.81	0.45
	2	Roads	2	4.96	0.19
	3	Prayer places	1	4.98	0.16
	4	Health centre	5	4.71	0.60
	5	Park and play ground	4	4.73	0.53
	6	Police and fire station	7	4.60	0.95
	7	Social hall	6	4.34	0.77
	8	Grave yard	8	4.2	1.14

These are reasonable rate values and match with the views of the chosen respondents. The professional experts agreed that the first five government facilities that should be developed were prayer places, roads, schools, health centres and then parks and play grounds. The community hall, graveyard and police and fire station were needed once the area was occupied.

Table 5.11: Grantees and applicants citizens' views about order for providing government public facilities

Categories			Order		Mean		Standard deviation	
			CG	CA	CG	CA	CG	CA
Government public facilities	1	Schools	3	3	4.77	4.84	0.58	0.40
	2	Roads	2	2	4.88	4.92	0.40	0.32
	3	Prayer places	1	1	4.91	4.94	0.35	0.26
	4	Health centre	4	4	4.71	4.79	0.62	0.51
	5	Park and play ground	5	5	4.65	4.61	0.63	0.65
	6	Police and civil station	8	6	4.40	4.50	0.81	0.71
	7	Social hall	6	7	4.59	4.41	0.75	0.83
	8	Grave yard	7	8	4.41	4.32	0.89	0.83

CG: citizens' granted land; CA: citizens who applied for land

As shown in Table 5.11, the citizens respondents all agreed that the first five government facilities that should be in place before distributing residential land plots to citizens are, in order of priority, a prayer places, roads, schools, health centre and then a park and play ground. A community hall, graveyard and a police and fire station were also perceived as

needed, but there were given lower priorities. The mean rates for their views range between 4.94 and 4.32 and the standard deviations range between 0.26 and 0.83.

The professional experts believe that the first privately provided public facilities that should be developed are commercial areas and nurseries followed by a petrol station. The mean rates for their views range between 4.73 and 4.10. The standard deviations results are between 0.59 and 1.0 (see Table 5.12).

Table 5.12: professional experts view of order for providing private public facilities.

Categories			Order	Mean	Standard Deviation
Private public facilities	1	Shops	1	4.73	0.59
	2	Nursery	2	4.56	0.69
	3	Petrol station	3	4.10	1.00

The citizens' respondents already granted lands believed that the first privately-provided public facilities that should be delivered are shopping centres, a nursery then a petrol station. However, the citizens' respondents from the group who had applied for plots felt that the first facility should be a nursery, followed by shopping centres and a petrol station. The mean rates for these views range between 4.73 and 4.23. The standard deviations are between 0.53 and 0.92, as shown in Table 5.13.

Table 5.13: Grantees and applicants citizens' views about order for providing private public facilities

Categories			Order		Mean		Standard Deviation	
			CG	CA	CG	CA	CG	CA
Private public facilities	1	Shops	1	2	4.72	4.72	0.57	0.53
	2	Nursery	2	1	4.53	4.73	0.68	0.54
	3	Petrol station	3	3	4.23	4.53	0.92	0.74

CG: citizens' granted land; CA: citizens who applied for land

The professional experts believe that the public services that should be delivered are in this order water, electricity, mobile telephone, sewage, telephone landlines, waste collection facilities and post office services. The public services mean rates are high, between 4.99 and 4.48. The standard deviation rates range between 0.11 and 0.80 which indicates that the views are very close to the mean which can approve those experts shared the same opinion (see Table 5.14).

Table 5.14: Professional experts view of order for providing public services.

Categories			Order	Mean	Standard Deviation
Public services	1	Electricity	2	4.94	0.33
	2	Water	1	4.99	0.11
	3	Telephone	5	4.81	0.51
	4	Mobile	3	4.90	0.38
	5	Sewage	4	4.90	0.41
	6	Waste collection	6	4.78	0.55
	7	Post office	7	4.48	0.80

According to the interviews, the public services that should be developed first are, in order, water, electricity, mobile phone, sewage and waste collection. The professional experts thought that providing telephone and post office services can be left until the neighbourhood is occupied.

Table 5.15: Grantees and applicants citizens' views about order for providing public services

Categories			Order		Mean		Standard Deviation	
			CG	CA	CG	CA	CA	CG
Public services	1	Electricity	2	1	4.92	4.93	0.33	0.32
	2	Water	1	2	4.93	4.93	0.32	0.28
	3	Telephone line	5	5	4.74	4.66	0.66	0.51
	4	Mobile phone	3	3	4.83	4.78	0.57	0.48
	5	Sewage	4	4	4.77	4.75	0.62	0.53
	6	Waste collection	6	6	4.74	4.66	0.63	0.54
	7	Post office	7	7	4.27	4.40	0.75	0.83

CG: Citizens' granted land; CA: citizens who applied for land

As shown in Table 5.15, the citizens granted land felt that the order in which public services should be delivered is water, electricity, mobile phone, sewage, telephone lines, waste collection and post office services. The citizens who had applied to be granted residential land plots believed that the first public services that should be delivered is electricity followed by water, mobile phone, sewage, telephone lines, waste collection and post office services.

The findings reported by the participants also reveal that the main public facilities and services that must be provided prior to the distribution of residential land plots are prayer

places, roads, schools, health centres, parks and playgrounds, shops, nurseries, water, electricity, mobile phone, sewage and waste collection.

5.4.2 Is the coordination of different development stages between related organisations sufficient to develop the new neighbourhoods?

The present level of coordination between concerned organizations in relation to the development of public facilities and services is limited as mentioned above. More effective coordination is required at all development stages. Almost all the professional experts were looking for more effective coordination, and only one disagreed. Additionally, the majority felt that local community representatives are needed to coordinate activities between relevant government organisations. This view was disagreed with by two experts and six experts were uncertain (see Figure 5.18).

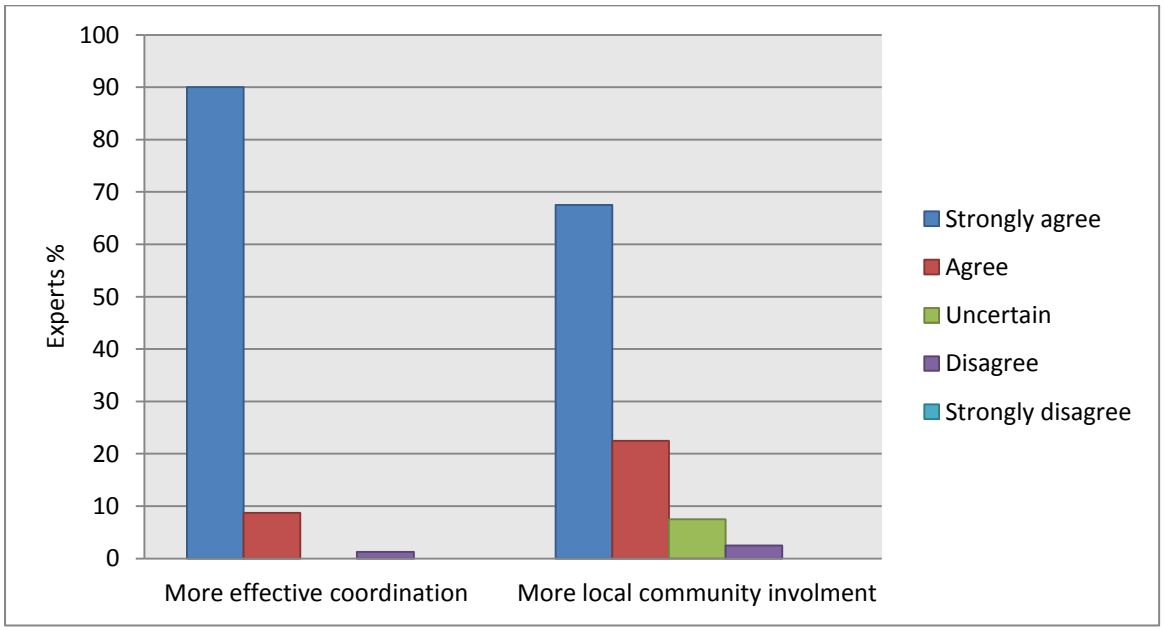

Figure 5.18: Professional expert respondent groups' views about the need for more effective organisational coordination in the design and provision stages.

The urban planners, housing experts, public facilities and services experts and community experts all agreed that there was a need for more effective coordination. The private developers agreed highly with respondents and disagreed with one expert. On the subject of greater involvement from local community representatives in the provision of public facilities and services coordination all housing experts and community experts agreed. Also, the majority of urban planners, private developers and service experts agreed, only one each of the urban planners and services experts disagreed about this (see Table 5.16).

Table 5.16: Professional expert respondent groups views about the need for more effective organisational coordination and more local community involvement in implementation of public facilities and services

Respondent Groups		F/P	More effective coordination		More local community involvement	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	16	0	15	1
		P	100	0	93.75	6.25
2	Housing experts	F	16	0	16	0
		P	100	0	100	0
3	Public facility and services experts	F	16	0	15	1
		P	100	0	93.75	6.25
4	Private developers	F	15	1	15	1
		P	93.75	6.25	93.75	6.25
5	Community representatives	F	16	0	16	0
		P	100	0	100	0

F: number of respondents; P: percentage of the total sample respondents

The professional experts recommended more coordination between the concerned actors and the involvement of all related organisations in the design and approval. Only one private developer disagreed with this, believing that the coordination level in the approval process was good enough. The other experts stated that budgets should be specified for all development issues in residential neighbourhoods and should be constructed and operated by the organisation concerned at the same time, and before residential plots were distributed.

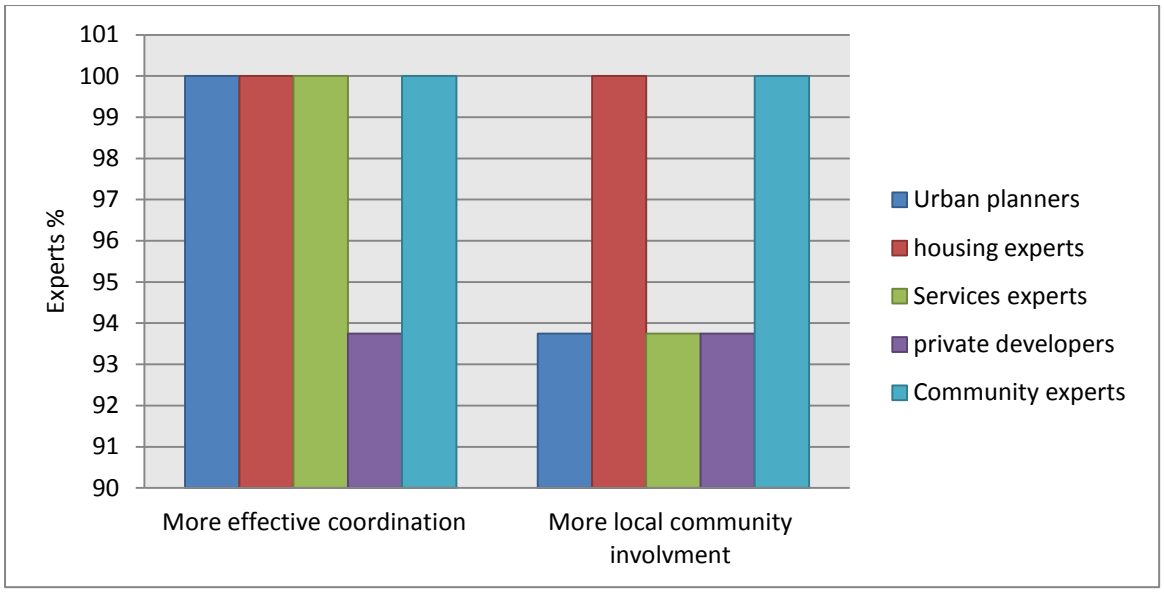

Figure 5.19: Professional expert respondent groups' views about the need for more effective organisational coordination and more local community involvement.

The professional experts felt the participation of local communities was less effective than it could be. One urban planner and one public facility and services expert disagreed, as they believe the level and amount of community participation was good enough at this stage. The findings also suggest that coordination between concerned organisations and the involvement of community representatives when providing public facilities and services should be increased and managed better at all stages (see Figure 5.19).

5.4.3 How are the public facilities and services financed and operated for successful development?

The financing and operation of the public facilities and services are the responsibility of several government and private organisations. The government facilities are financed and operated by relevant government authorities. Privately provided public facilities are financed and operated by the land owner investors concerned. Public services are financed and operated by government organisations and government investment companies. In addition, it was suggested that citizens should pay 10% of the public services cost. These points were investigated as follows.

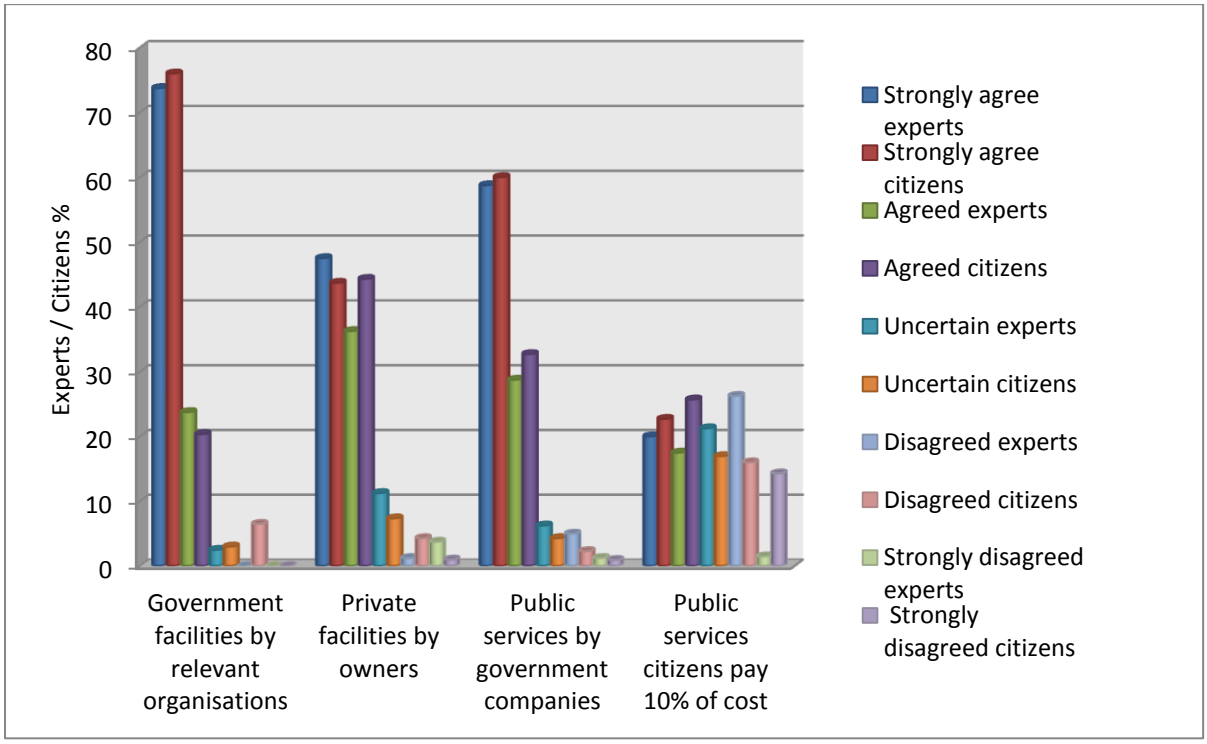

Figure 5.20: Professional experts and citizens rating about financing and operating public facilities and services

The financing and operating of the provision of public facilities and services was presented in Figure 5.20. The professional experts believe that government public facilities should be financed and operated by government related organizations; as agreed

by almost all experts, although two experts were uncertain. Meanwhile, the majority of citizens agreed; only twenty citizens disagreed and nine citizens expressed uncertainty. The private sector should be encouraged to finance and operate privately-owned public facilities, as agreed by the majority of experts; on this subject, nine experts and four experts disagreed. The citizens agreed to higher rates and had lower levels of disagreement and uncertainty. Public services, as the majority of professionals and experts noted, should be financed and operated by government investment companies. One expert was uncertain about this point, and another disagreed. Most citizens agreed with few disagreeing or expressing uncertainty. Regarding charging citizens with 10% of public services costs the experts and citizens were divided between agree, uncertain, and disagree.

Table 5.17: professional expert respondent groups views about financing and operating public facilities.

Respondent Groups		F/P	Government public facilities		Private public facilities	
			Total Agreed	Total Disagreed	Total Agreed	Total Disagreed
1	Urban planners	F	15	0	13	2
		P	93.75	0	81.25	12.5
2	Housing experts	F	16	0	15	0
		P	100	0	93.75	0
3	Public facility and services experts	F	15	0	12	1
		P	93.75	0	75	6.25
4	Private developers	F	16	0	12	1
		P	100	0	75	6.25
5	Community representatives	F	16	0	15	0
		P	100	0	93.75	0
6	Citizens granted	F	145	2	129	12
		P	96.67	1.33	86	8
7	Citizens applied	F	144	0	135	2
		P	96	0	90	1.33

F: number of respondents P: percentage of the total number of respondents

As shown in Table 5.17, almost all the professional experts and citizens groups believed that government public facilities should be financed and operated by the government. The housing experts, private developers and community experts all agreed, the majority of the urban planners and public facility and services experts agreed, and all experts agreed. All the professional experts expressed the belief that government public facilities should be financed and operated by the government, because these services are given freely to citizens. Citizen respondents in both groups prefer government public facilities to be financed and operated by relevant government organisations. Almost all the citizens from both groups agreed the government should finance and operate government public facilities. Only two, which had been granted land disagreed, and of those who had applied for land none disagreed.

The majority of the professional expert respondents agreed private public facilities should be financed and operated by the private sector. Additionally, most of the housing experts and community experts agreed, as did most of the urban planners, public facility and services and private developers; just two of the urban planners and one of private developers disagreed. For the privately provided public facilities there was general agreement that these should be financed and operated by the private sector but some experts disagreed. This is because the investment in the previously delivered housing areas was not successful and they want them to be included in the remit of the government investment companies. The citizen respondents believed privately-owned public facilities should be financed and operated by the private sector. Of the group of citizens who had been granted land, twelve disagreed, while in the group that had applied for land, only two disagreed, that such facilities should be financed and operated by the private sector.

The experts almost unanimously agreed that these services should be financed and operated by government investment companies. Regarding the proposal that citizens should pay 10% of their financial costs, some of the public facilities and services experts and the community experts agreed with this. However, almost half the urban planners, housing experts and private developers disagreed. They all also concurred that these services should be financed and operated by government investment companies (see Table 5:18).

Table 5.18: professional expert respondent groups views about financing and operating public services.

Respondent Groups		F/P	Public services			
			Government Companies		Citizens pay 10% of cost	
			Total Agreed	Total Disagreed	Total Agreed	Total disagreed
1	Urban planners	F	14	2	4	8
		P	87.5	12.5	25	50
2	Housing experts	F	16	0	5	7
		P	100	0	31.25	43.75
3	Public facility and services experts	F	13	1	9	6
		P	81.25	6.25	56.25	37.5
4	Private developers	F	12	2	4	7
		P	75	12.5	25	43.75
5	Community representatives	F	15	0	8	5
		P	93.75	0	50	31.25
6	Citizens granted	F	139	6	74	52
		P	92.67	4	49.33	34
7	Citizens applied	F	138	3	69	50
		P	92	2	46	33.33

F: number of respondents P: percentage of the total number of respondents

The financing and operating of the public services was raised in two ways. The first regarded investment by government companies and the second suggested citizens pay 10% of the finance cost.

However, the experts also agreed that citizens could pay 10% of the cost of services because such services needed to be available as quickly as possible. Some other experts disagreed because they thought all services should be provided by the investors and the customers should pay only for the services consumed. Virtually all the respondents, with high rates in each group, agreed these services should be financed and operated by government investment companies. For the second option, the suggestion that citizens pay 10% of the finance costs, opinions were more divided. Among the citizens granted who had been granted land, almost half agreed, while the others disagreed, and similar results were found in the other group. This proves that generally these respondents

believe that public services should be financed and operated through government investment companies, but some, at least, seem to allow the possibility of citizens paying 10% of these costs.

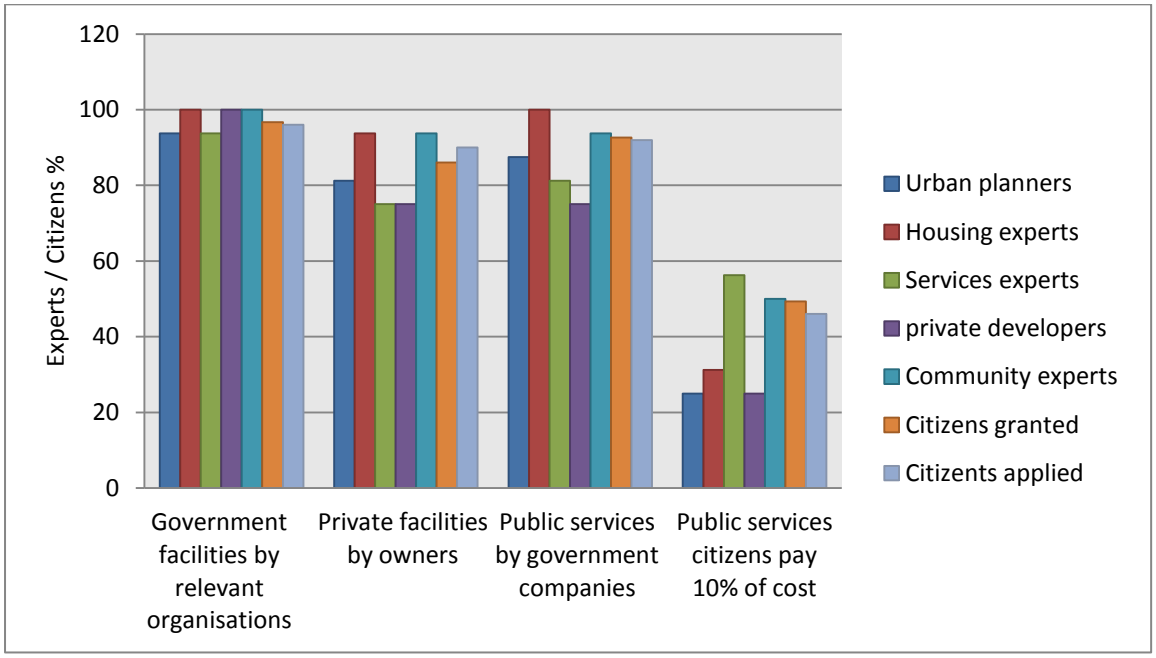

Figure 5.21: professional expert respondent groups' agreement views about financing and operating public facilities and services

The findings from the experts and citizens, as shown in Figure 5.21, suggest that to succeed when developing public facilities and services, government facilities should first be financed and operated by relevant government organisations. These privately owned facilities should be financed and operated by the private sector and public services should be financed and operated by the government investment companies that finance and operate them.

5.5 Chapter summary

This chapter has presented the survey findings and an analysis of the data gathered from professional experts through structured and semi-structured interviews, the citizens' questionnaire and researcher's site visit observations of the new residential neighbourhoods' in some cities in the Governorate of North Albatinah in Oman. The survey covers issues related to development process of new residential neighbourhoods such as the housing policy system, land use design layout regulation and provision of public facilities and services. This is to answer the research questions as presented in Table 5.1.

The survey findings believed that the existing housing policy system targets individuals. The professional expert and citizen respondents agreed that the housing policy system needs to target households by granting residential land plots to households male or female. They ask to implement more housing finance approaches such as subsidised housing loans to build or buy a completed house from developers and the housing programmes administrated by government in cooperation with private sector.

It was also found that land use design regulations were not applied fully, and that there is no approved strategic spatial plan as land use design standards were not employed as approved. The professional experts believed the detailed land use design layout of the new residential neighbourhoods should be improved, in relation to providing national strategic spatial plans and applying land use design standards. They also stated that this objective should be supervised and approved by concerned organisations.

The findings show that there is a lack of development of the designed public facilities and services. Also, the development of the main public facilities and services should be provided before land plots are distributed and with more effective coordination between related organisations. The public facilities should be financed and operated by government relevant organisations, private facilities by private-owned and public services can be finance and operated by implementing government investment companies.

All of the analysis in this chapter will be linked with analysis of the findings from Chapters 2 and 3, for the results discussion in Chapter 6.

CHAPTER 6

DISCUSSION OF THE RESULTS

6.1 An overview

The purpose of this research is to investigate the factors that have contributed to the slow development process of new residential neighbourhoods in Oman and suggest some solutions to improve it. This chapter discusses the findings in relation to the three main issues presented in the conceptual framework: the housing policy system, the land use design layout regulations and the implementation of public facilities and services (see section 2.7 in chapter 2).

The discussion begins by reviewing, briefly, the literature reviewed in the review and practice related to each issue, before presenting the related site visit observations, opinions of professional experts as expressed in the interviews and respondents' views from the citizen questionnaire. From the discussion of each issue, the research is expected to identify and prove the obstacles that might slow the development process for new residential neighbourhoods and suggest how this can be improved. The corresponding discussion views on each issue will be presented as research conclusions in Chapter 7.

This chapter is divided into five sections. The second section is devoted to the discussion of the housing policy system. The third section addresses the discussion of the findings regarding the land use design layout regulations. The fourth section discusses the findings about the implementation of public facilities and services while section five summarises the main points of this chapter.

6.2 Housing policy system discussion

The housing policy system needs to work to improve housing supply resources and meeting housing demand for all income groups in both urban and rural areas. This can be achieved by developing the overall national economy, allocation of housing resources and the mobilisation of housing finance. This includes providing jobs and increased wages for employees, and low interest loans, mortgage guarantees and interest subsidies to developers and consumers (Saleh, 2004 and Isaacs, 2007).

In this section, the discussion of the findings focuses on presenting the most important data relating to how to improve the housing supply, housing finance, and housing administration.

6.2.1 Housing supply

One of the important issues in a housing policy system is how to offer citizens' houses. In many developed countries, citizens' housing is mainly developed by the private sector on a market basis and distributed at markets prices by supply and demand. The households receive houses according to their own choices, preferences, budgets, and at market prices (Ferguson and Navarrete, 2003, Golland, 1998 and Watson, 2009). In all other Gulf cooperation countries, except Oman, housing systems serve households only by offering completed houses, residential land plot with a housing loan, a housing loan only or an apartment (Gulf Cooperation Countries Council, 2013). The existing housing policy system in Oman allows the residential land plots to be distributed to all individuals over 23 years old, and completed houses and interest free housing loans to be available to low income households through the Ministry of Housing (Ministry of Housing, 2008).

The existing housing policy system allows individual citizens to apply for residential land plots and low income households for free completed house or interest free housing loans. This has increased the number of applications and consequently, has created more pressure on the government to offer land plots, completed houses and provide big budgets for interest free housing loans.

The increased demands for housing applications in Oman has impacted on the land use planning by horizontal expansion, making the priority quantity instead of quality. Thus, it might be necessary to review the housing and planning laws on a regular basis, while studying marketing requirements and supply and demand for mortgage products (TUMB, 2015). These might indicate that the existing housing system which is applied is one of the obstacles that affect the development process for new residential neighbourhoods.

The analysis of the survey findings showed that the existing system of granting residential land plots as targeting individuals because a plot is offered to each household member and without public facilities and services or a finance plan. Moreover, although all the residential land plots in the neighbourhoods were distributed, few of them were constructed on. This indicates that the granting of residential land plots targets individuals rather than the citizens' households and that some changes need to be made in relation to the distribution rules for residential land plots.

Consequently, it is suggested that the residential land plots should be distributed to heads of households only, males or females, in areas serviced with public facilities and services. Furthermore, it might be better to provide housing on a supply and demand basis only.

This would involve combining the registered applications for all related households and granting land plots for families that do not own land or a completed house. This might reduce the number of housing applications and minimise the time required to develop new residential neighbourhood plots.

6.2.2 Housing finance

Regarding house finance, at the present time the government is granting interest free housing loans for low income households, and several subsidised interest groups of housing loans through the Housing Bank for different citizens' income groups (Ministry of Housing, 2008 and Housing Bank, 2013). The applications take three years to process because there is a large waiting list. It appears that many residential land plots are distributed without a finance plan or linked with any housing loan programmes. Other housing loans are available from other commercial banks, but without subsidies and on high interest rates. There are no other choices, such as buying from developers or completed houses for sale. The survey findings presents that the distributed plots in residential neighbourhoods that there were few existing houses, but the majority of residential land plots were vacant. The existing houses were built by their owners, through private contractors, and financed by the owners themselves, or by housing loans through Housing Bank. This indicates that the housing finance approach is limited.

The findings suggested the need to provide two options for types of loan: to build a house or to buy a completed house from developers. The people should choose between completed houses or open lands to build their own houses. It is suggested that the houses should be constructed by developers and be paid for by the government then delivered to the citizen. These programmes should be offered for households male or female for one time only, for individuals and for more than one time can be offered directly from developers on a market basis.

Consequently, the above mentioned findings indicate that the relevant organisations should work to provide several subsidised housing finance options that are linked with the grant of residential land plots, such as a housing loan to build or to buy a completed house jointly managed by the government and private sectors. In adopting such loan programmes, the citizens might find several options, as competitors would try to provide financial resources to accelerate the satisfaction of their housing needs. This could also induce developers in the market to develop different types of housing units for different income groups.

Consequently, the above mentioned findings suggest the relevant organisations should work to provide several housing finance options, such as a housing loan to build or to buy a completed house jointly managed by the government and private sectors. This could also induce developers to develop different types of housing units for different income groups to serve the marketplace. The subsidised housing should target the low-income groups, and include the option to build or buy a completed house direct from the developers; others can buy completed houses or serviced land plots at market prices. When adopting loan programmes, citizens might encounter several options, as competitors would strive to provide financial resources to accelerate satisfaction with housing needs to improve the development of allocated plots.

6.2.3 Housing supply and housing finance administration

The housing services are administrated by government organisations. Residential land plots distributed by Ministry of Housing and subsidised finance program is through only one organisation, which is the Housing Bank (Ministry of Housing, 2008 and Housing Bank, 2013). The market interest loans can be offered only from finance private developers. With regard to the existing housing policy system management, it is administrated totally by government with limited private sector housing activities. The findings show that this is one of the causes for slowing the development process of new residential neighbourhoods.

The survey findings suggested that house programmes should be managed by the government, in coordination with the private sector, through contractors, developers and finance organisations such as commercial banks and finance agencies. The head of household, male or female, should be granted residential land plots by the Ministry of Housing and this should be linked with a subsidised loan to build the house on their own. They suggested that for housing loans, the government should manage these loans in cooperation with the private sector. For buying a completed house, the house should be constructed by developers and be paid for by the government on a subsidised housing loan through a finance agency, and then delivered to the citizens.

Based on the information presented above, the administration of the housing supply and housing finance can be improved by involving private sector partners. Housing can then be supplied by developers, who might utilise relevant organisations to offer untouched government land to developers for development and distribution to subsidised and unsubsidised groups in agreement with rules on a market basis. Housing finance can be

delivered through the banks and finance agencies involved in processing housing loans to different households groups, and the government would then pay subsidised rates for low-income groups. The housing administration system that has been applied in Saudi Arabia includes offering several housing related services to citizens to reduce instances of over-allocation and control development through vacant land taxes. This option might be useful to study and apply to Oman's special circumstances.

6.3 Land use design layout regulations discussion

The discussion regarding land use design layout regulations concentrates on the importance of providing strategic spatial plans and the application of land use standards. It aims to reduce the environmental impact of over-allocation and the poor design setting of the development process in new residential neighbourhoods.

6.3.1 Implementing strategic spatial plans.

The strategic spatial plans for new residential neighbourhoods are important and the absence of different spatial plans such as a general plan, master plan and detailed plans in unplanned housing areas makes the development incomplete. The strategy of urban planning must cover regional economics, transport markets, local labour markets, integrated land use and transport planning tools, together with household projections, housing allocations systems and also assessment of sustainability (Glasson, 2007 and He et al, 2011).

The success of a strategic spatial plan involves three major challenges: overcoming regional disparities, enhancing economic effectiveness and setting effective planning guidelines. Comprehensive urban plans draw outlines of urban development and the detailed planning design includes the designs of housing areas, facilities, services and open spaces. There are four interacting dimensions in drawing up spatial strategies; attention to and thinking of the urban complex as one unit, taking into account the socio-spatial complexity of urban areas, the availability knowledge resources and framing concepts and projects with the power to shape future directions and actions. To work this out, one agency must be mainly responsible and involve related organisations (Haider, 1994, Healey, 2010 and Hall & Jones, 2011).

Spatial planning consists of national planning, carried out by the political leadership, regional planning which is designed to achieve optimal distribution of economic and social activities, based on the available resources and local planning, which deals with a specific geographic area and focuses on aspects of urbanisation with its economic and

social aspects. The techniques of zoning can be included by dividing the areas into different zones with permitted uses. This might improve the quality of housing services needed and help local authorities to produce the detail planning needed (Alobidy and Aldory, 2002, Alani, 2007 and Cullingworth and Caves, 2009).

In relation to strategic urban plans in Oman, two long-term national urban development strategic plans, five years development plans and yearly action development plan have been produced. While there is strategic spatial plan for Oman, this has not been sufficiently developed and indeed the Ministry of Housing implementing new residential neighbourhoods on the basis of a key town strategy, five-year development plan aims, yearly action plan budgets and the local master plan for implementing new residential neighbourhoods. In contrast, the governments of other Gulf Cooperation Countries produce overall strategic spatial plans such as the national strategic spatial plans in Saudi Arabia and master plans in some other countries (Supreme Committee for Town Planning, 2009 and Gulf Cooperation Countries Council, 2013).

From the survey findings, it appeared that the allocation of new residential neighbourhoods was chosen by the Ministry of Housing town planners only after revising the local spatial maps of the cities. These maps were implemented by their staff and not based on any approved strategic spatial plans. Some of these planned areas were located near existing housing areas while others were far from urban areas on government-owned open spaces. This issue confirmed that absence of strategic spatial plans slows the development process for new residential neighbourhoods.

According to the findings, and in order to reduce the environmental impact of the over-allocation of land plots, it is important to provide a national strategic spatial plan, regional plans and a master plan with housing zones for the entire country. This could serve to distribute development, balance the population with job availability, and implement new housing areas. Furthermore, it would also allow the authorities to plan for a better future and to establish town planning laws. National strategic spatial plans could also offer a combined plan for economic, social, environmental management, and land use, allocating each governorate its own resources to support economic activities and improve the prospects of jobs for people to ensure their accommodation is near to their place of work, thereby creating a policy that considers citizens' needs. A national strategic spatial plan of this type could be supervised by the Higher Planning Council, which is responsible for representing relevant organisations. In addition, it would be necessary to involve relevant organisations likely to be working on the ground, and Omani experts, in order to take into

account Omani lifestyles and culture and emphasise plans based on site observations and accurate data collection. Any national strategic spatial plan should be approved by the Minister's Council, the State Council and the Alshorra Council because these represent all the parties of government in the community. Master plans with housing zones should also be provided, as these are important for allocating different land use zones to assist planners to work on clear detailed plans for housing. In addition, it would be helpful to situate new projects in safe and appropriate locations, avoiding areas of flooding. This would then concentrate the development process for new residential neighbourhoods in the most important and needed places to justify the designation of housing zones for all public and private development organisations that might reflect positively on social, economic and environmental sustainability.

6.3.2 Uses of land use design standards

This discussion on land use standards draws attention to the land use design standards that should be used. This is related to sustainable land use design, provision, supervision and approval in implementing new residential neighbourhoods.

Land use design layout is important because it reaches the important needs of people and sets goals, objectives and targets. These include social and economic issues, and qualities of planning like ensuring flexibility, quality of environment, education, healthcare, housing and mobility. The land use design layout for new residential neighbourhoods needs to be workable for all resident groups in the community. It must be implemented in order to meet the needs of the daily lives of people (Gallent, 2007 and Hall and Jones, 2011).

The land use layout for existing new residential neighbourhoods can be reviewed to ensure open spaces on existing land plots are minimised and to redesign the spaces between the plots of land for various land uses. It is also necessary to link design schemes with construction specifications to select the period required for the reconstruction. In addition, it is necessary to apply specifically for roads and plots sizes while preparing alternatives to existing housing types and for the application of modern technology to building materials within residential neighbourhoods. Essential data can be calculated using GIS, to ensure the effective assessment of social, economic and environmental information for residential neighbourhoods after development. This includes providing data on the construction of residential blocks, facilities and services, which helps to reverse their development image (TUMB, 2015).

It is important to note that efficient land use design can be achieved by making the land use mix compact and high density and increasing the urban growth within the building areas to provide and preserve green and open spaces and ensure that residential neighbourhoods are secure, attractive and liveable. Furthermore, good land use design needs to work to reduce the impact of energy consumption and transport. Sustainability requires centralisation of services and facilities to minimise the growth of development in term of resources and pollution. Moreover, the designer should prepare the site for a number of residences with housing, community facilities and services, transport systems and enough places to produce renewable energy, water catchments and supply. In addition, the site should be designed to provide landscaped areas and safety from the effects of climate changes and the impact of flooding on infrastructural services, and the interconnection between these sites should integrate urban sustainable spatial plan systems (Wheeler, 1998, Stead, 2000, Rydin, 2010 and Hull, 2011).

The theories suggested that locations of new residential neighbourhoods should be near local communities, jobs and transport connections. Housing needs to be allocated within existing urban areas, to encourage compact land uses and increases housing density with urban growth within the built up areas. However, if that does not prove possible, new residential neighbourhoods can be proposed in new areas with all facilities and services provided. The location condition should be suitable for digging, levelling and constructing houses and services and be protected from surface flooding, fast through traffic, noise and vibrations. Also, it should have a minimum slope level, natural lighting, and air circulation and allow for easy walking (Carmona et al., 2003, Almusawi and Yaqoop, 2006 and Gallent & Tewdwr-Jones, 2007).

The residential land plots in new residential neighbourhoods have specific ranges of plots size depends on local specifications. The Omani standard average plot area is 600m^2 for house unit (Supreme Committee of Town Planning in Oman, 2000). Public facilities are the local services that are built on land plots including prayer places, commercial areas, educational provision, health centres, and entertainment facilities. They are distributed according to population numbers and so they can service all the age groups among residents. Public services are services that are provided in new residential neighbourhoods such as roads, electricity, water, sewers, waste collections and telephone cables (Allam, 1983, Supreme Committee of Town Planning in Oman, 2000 and Aldolimy, 2009).

In relation to land use design standards in Oman, the Ministry of Housing is supposed to apply the design standards that were previously approved by The Supreme Committee of

Town Planning in 2000. Nevertheless, their town planners apply mainly their own experience. The allocation of new residential neighbourhoods is done by the Ministry of Housing town planners in the regional office. They allocate the new housing areas, usually on flat open government land or on an extension to old housing areas, where possible or sometimes in new areas that may not be actually linked with jobs availability, main roads or services. The layout of the residential and public facility plots is designed by their staff and approved by the ministry officials. The design is non-compact, with a low density base. The public services are designed by related organisations at the time of construction. The distribution of vacant land plots based on the existing system has consumed a lot of open spaces. All these factors can have a bad impact on the environment and lead to an increase in climate change. In general, the current Omani neighbourhood design practice does not match the aims for liveable and sustainable city design.

The survey findings show that existing new residential neighbourhoods were designed, supervised and approved by Ministry of Housing planners. According, to the relevant town planners, organisations such as the Electricity Company, Water Authority, Telephone Company, Environment Authority, Transport Authority and Traffic Authority had all approved the plans after the design was completed. The design was worked out to provide more housing plots with fewer plots for public facilities. It was found there was no design layout for public service routes, only roadways. This confirmed that the design of new residential neighbourhoods fails to match approved standards. This indicates that the land use design layout hand book standards are not fully applied in designing new residential neighbourhoods. Consequently, this leaves the urban development uncompleted, which may affect its future economic, social and environmental sustainability. Also, the related services organisations needs to design their sites at a later stage, which might affect the original design of the neighbourhood and lead to a delay in providing services.

From the findings, it has been suggested that there is a need for relevant organisations to use approved design standards. This is because there is a mismatch between land use designs for existing new residential neighbourhoods and the application of land use design regulations. Accordingly, it is suggested that the design should be based on a compact design, ideally planning just a 300m walking distance to public facilities to increase willingness to walk and cycle and to minimise travel by car, leading to a healthier lifestyle for citizens. The findings confirmed a need to provide and approve

public services routes at the design stage. It is advisable that the design of new residential neighbourhoods be implemented by private engineering offices through tenders and that Ministry of Housing staff should supervise the design, which would subsequently be subject to approval by relevant organisations and local municipal councils. All these processes might be useful for accelerating the quality of land use production and avoiding poor designs.

6.4 Implementation of public facilities and services discussion

The discussion of implementation of public facilities and services is concerns the types of public facilities and services that should be provided in a new residential neighbourhood and the role of relevant organisations in coordinating, financing and operation such services. They will offer solutions to address the lack of public facilities and services in new residential neighbourhoods.

According to the approved urban planning regulations the public facilities that should be developed in a new residential neighbourhood are divided into three types; government public facilities, privately-run public facilities and public services. Government public facilities include mosques, schools, health centres, police and fire stations, parks, post offices, and cemeteries and the public services are roads, electricity, water, sewers, mobile phones, waste collection and telephone lines. These should be provided by their relevant organisations depending on their budgets. The privately-run public facilities such as commercial centres, nurseries and petrol stations are developed by the private sector based on market conditions. All of these public facilities and services are provided after residential land plots are distributed and there are buildings on the land plots, with priority for electricity only (Supreme Committee of Town Planning in Oman, 2000 and Ministry of Housing, 2009).

The coordination between concerned actors in provision of public facilities and services for the new residential neighbourhoods is important to achieve sustainable development of new residential neighbourhoods. This can be achieved by providing citizens' needs, managing their resources and planning to reduce uncertainty about their requirements. This might be solved through the corporate management style, to establish a committee, appoint a chief executive, create fewer departments and develop a coordinated policy and involve the public, private and community sectors as a partnership. This will involve the citizen in sharing the information, setting the goals and policies, and allocating tax resources, as well as the operation and benefits of the programme, in order to improve the

quality of urban life in area such as welfare, health and housing. Moreover the stakeholders should devise a shared vision, which can establish the impetus for change, promote a balance of projects, and they should have the courage to innovate, aim to generate enough yield, organise for concerted action, and monitor results and resource the process. The establishment of a partnership creates better networking, joined-up thinking and vision making, access to shared information, access to funding and a more focused and effective service delivery. It is important that the knowledgeable actors from the related public, private and community aware of housing plans and the types of housing programs available before they are delivered. This will help in avoiding any failure to meet the citizens' needs. The great benefits of coordination and combining the public sector, private sector and community efforts is to create agreement and deliver successful new housing developments (Wilson and Game, 1994 and Elcock, 1994).

The partnership between the government and private sector has an important contribution in the process of finance and operation of the new residential neighbourhoods. It increases the private sector investment role in providing public facilities and services and meeting people's needs. This allows cooperation of both sectors and combining of their goals, a target that strengthens the process of development for new residential neighbourhoods. The development regulations need to be linked to the provision of public facilities and services and this will determine how much the government should invest and how much can be provided by landowners and developers. The finance can come from different parties such as developers of new areas, existing property owners, owners of specific areas through special assessment districts, the issue of bonds, capital improvement programmes for the city and tax increment financing (Graham & Marvin, 1996, Cullingworth & Caves, 2009 and Healey, 2010).

In relation to Omani practices in the development process for public facilities and services, relevant organisations offer services after building on the land plots, with priority for electricity only. The other services come later depending on priority orders and budgets. Public facilities and services are all financed and operated by government organisations; only electricity and telephones are provided by government investment companies. The coordination between relevant organisations is limited and local communities are only indirectly involved through their elected members on the Alshorra Council, Municipal Councils and the appointed members in the State Council and specific local committees. These committees suggest the way of delivering new housing areas to

relevant organisations and within their existing budgets and plans (Supreme Committee of Town Planning in Oman, 2000 and Ministry of Housing, 2008 and 2009).

From the findings, there is a lack of public facilities and services, and financing and operating depends on the relevant organisations' plans and budgets, based on the number of houses constructed. Thus, the coordination is less than it should be and is not linked to developing the new residential neighbourhoods. Also, there was a very limited degree of coordination between concerned organisations regarding the financing and operation of these services.

According to the information given above, the public facilities and services should be delivered before the land plots are distributed. The new residential neighbourhoods should be served with public facilities and services and the required services for all ages and social groups. This can be achieved by coordinating relevant organisation and public and private sector partnerships. Developers can be involved as a way to invest in providing infrastructure for the planned areas, agreeing and approving regulations between them and relevant organisation. In addition, it might be useful to redesign undeveloped distributed (over-allocated) residential land plots through the medium of private sector investments.

6.4.1 Types of public facilities and services that need to be provided

The type of public facilities and services provided depends on the approved land use plan for the new residential neighbourhoods. The development of these services was as presented in survey findings, in terms of which of the public facilities and services needed to be provided before delivery of residential land, the first five government facilities that should be developed were prayer places, roads, schools, health centres and then parks and playgrounds. The community hall, graveyard and police and fire station would be needed once the area occupied. For the privately-own public facilities, suggested commercial areas and nurseries to be provided first, then a petrol station. For the public services that should be provided, suggested water, electricity, mobile phone, a sewage system and waste collection services. It is believed that providing telephone lines and post office services could be left until the neighbourhood is occupied.

The findings suggest that not providing public facilities and services has affected the development of distributed residential neighbourhoods. It is important that the suggested public facilities and services should be provided before residential land plots are

distributed and linked to real housing enquiries banded to ensure a limited time for construction, as this might accelerate the development of residential neighbourhoods.

6.4.2 The importance of coordination between relevant organisations

In relation to the importance of coordination of related actors, the Ministry of the Interior coordinates the relevant organisations and also supervises the coordination between the organisations and the local people, through the Municipal Council. The public and private organisations revise and approve their projects at the construction time. This leads to weak coordination between the design stage and the provision stage.

It was clearly confirmed from the survey findings, that more effective coordination is required at all stages of the development process. It is recommended more coordination between the concerned actors and the involvement of all related organizations in the design and approval. It is believed that budgets should be specified in advance for all development issues in residential neighbourhoods and that the service infrastructures should be constructed and operated by the organisation concerned at the same time and before residential plots were distributed. The findings showed that the participation of the local community was less effective than it could be in the development stage.

The suggestions above are also important for improving coordination between relevant organisations and the private sector. This might result in providing all public facilities and services as needed and permit all actors to share in the development responsibilities and in drawing up plans and designs. Coordination that is more effective can be led by municipal council members in each governorate to direct the priorities for allocating sites to developers.

6.4.3 Finance and operation

The existing provision of public facilities and services are all financed and operated by relevant government organisations, with only electricity and telephone lines and mobile phone are provided by government investment companies. All the public facilities and services are constructed by private sector companies on a tender basis. There is no rule that allows a private developer to be offered government land for new residential neighbourhoods for citizens' housing. All developers' projects are built on private land and houses are sold on a market basis and not linked with the citizens' housing system.

As presented in survey findings, it is believed that the government public facilities should be financed and operated by the relevant government organisations because these public

facilities should be provided free to the citizen. For privately-owned public facilities, the findings confirmed, by a slightly smaller margin, that these should be financed and operated by the private sector. However, some respondents argued that the investment in the previously delivered housing areas was not successful and they want such facilities to be included in government investment companies. Regarding facilities of public services, it was raised in two ways. The first, was regarding investment by government companies and the second suggestion was that citizens pay 10% of the finance cost. The findings show that these services should be financed and operated by government investment companies. However, for the proposal that citizens should pay 10% of the financial cost, less than half of the respondents agreed and other disagreed because they think all services should be provided by investors and the customers should pay only for the services consumed.

According to the research findings, people are reluctant to accept a share in the burden of the cost of public facilities and services at this stage. This means the government needs to find some different ways to finance and operate the public facilities and services offered which might be by including the private sector as a partnership when implementing new residential neighbourhoods. It might also be useful for relevant organisations to share the costs of infrastructures with developers by subsidising the provision of main basic services in places that are unattractive to private sector investors, to ensure the successful development of the new residential neighbourhoods.

6.5 Chapter summary

This chapter has discussed the findings of the data gathered in the literature review and concerning Omani practice when overseeing the existing development process for new residential neighbourhoods. In addition, the discussion has covered the survey findings, with the aim of identifying solutions to slow down development, and reduce the environmental impact from lack of public facilities and services for allocated residential plots.

The discussion was divided as per the conceptual framework into the three main issues; the housing policy system, the land use design regulations and the provision of public facilities and services and their sub-issues. The discussion has linked the findings from theories, existing practice and survey findings to identify the obstacles facing the development process for new residential neighbourhoods and has comes up with some specific suggestions for improvements.

In general the discussion concludes that for housing families, the citizens' housing system should grant households. The management of these allocation programmes can be done through government organisations in coordination with the private sector. For the land use design lay out regulation, it has been concluded that the design of new residential neighbourhoods should be based on strategic spatial plan and approved design standards, while the implementation of approved public facilities and services should be coordinated between relevant actors, to be provided before residential land plots are distributed, and these should be financed and operated by relevant government organisations and private sector.

The outcomes of this discussion will be presented in Chapter 7 as conclusions and recommendations to suggest the improvements that might be needed for the development process for new residential neighbourhoods in the Sultanate of Oman.

CHAPTER 7

CONCLUSIONS

7.1 Introductions

The overall aim of this research was to achieve a clearer understanding of the obstacles slowing the development process for the new residential neighbourhoods in the Sultanate of Oman and suggest some factors that might improve this development process. In order to achieve that aim, the research was directed to the study of three main related issues; the housing policy system, the land use design layout regulations and the implementation of public facilities and services.

This chapter presents the conclusions and recommendations that were reached by this research, based on the outcomes drawn from the literature reviewed, the empirical study and the resulting discussion of each issue. This chapter is divided into 6 sections. The second section draws the main findings of this research and is divided into three sub-sections, the theoretical stage, the empirical stage and the analytical stage. The third section answers the first three research key questions. The fourth section answers the fourth key question and draws some recommendations for the decision makers on how to improve the development process for the new residential neighbourhoods in the Sultanate of Oman. The fifth section evaluates the strengths and limitations of the research. The sixth section suggests areas for further research.

7.2 The main research findings

The aim of this research was to study the existing development process of new residential neighbourhoods in the Sultanate of Oman, in relation to the housing policy system, land use design layout regulations and implementation of public facilities and services. This was to investigate the obstacles slowing the development process and to suggest some factors that might improve it. For this purpose three main stages were involved to achieve the research aim. These stages were as follows:

- The theoretical stage, which was aimed to produce a conceptual framework and exploring existing housing practices in Oman.
- The empirical stage, which was fulfilled, by interviewing professional experts and citizens and site visit observations from examples of new residential neighbourhoods.

- The analytical stage, for all findings which was divided as explained in the relevant sub-sections.

7.2.1 The theoretical stage

The first stage, which includes the literature review in Chapter 2, was a theoretical overview of the concepts of a housing policy system, land use design layout regulations and implementation of public facilities and services, aimed to understand the development processes for new residential neighbourhoods. This was to provide a foundation for the research, by producing a conceptual framework. The framework divided into main indicators and sub-main indicators. This was used in the following chapters for collecting data, analysis and discussion of the development process for new residential neighbourhoods. This chapter explored the strengths of the housing systems adopted in some developed countries, to make use of these to evaluate the existing housing system in developing countries and to suggest factors which would help to upgrade these systems. It also presented the citizens housing approaches in Gulf Cooperation Countries (GCCs), which might be useful to be applied in Oman, especially the new housing system in Saudi Arabia, which might meet with Omani condition in several circumstances. One of important factors in this chapter was the approaches and methodology suggested to evaluate and improve the housing delivery in developing countries.

This stage also involved the research reported in Chapter 3, on the existing development process for new residential neighbourhoods in the Sultanate of Oman. This stage was based on secondary data collections and focused on the historical background of Oman social-economy and the three main issues of this research study. It highlighted the performance of the existing housing policy system that is based on the five-year development plan, and also the development process practices by relevant organisations in implementing and distributing the new residential neighbourhoods. This chapter presented the data gathered about the practices of housing supply, housing finance, housing administration, the strategic spatial plan used, the land use standards used, the types of public facilities and services provided and their coordination, finance and operation. This showed the gaps in the practice that might be affecting the development process of new residential neighbourhoods.

7.2.2 The empirical stage

This was the second stage, based on the considerations discussed in Chapter 4, the research methodology, and on the theoretical stage. As mentioned earlier, the research adopted a mixed quantitative-qualitative method. Chapter 4 gave details of the research design and data collection methods. For the quantitative method, three survey techniques were used; structured interviews, a questionnaire and site visit observations, while semi-structured interviews were used for qualitative method. All the questions in the survey techniques were prepared based on the conceptual framework. The structured and semi-structured interviews were conducted with professional experts and were directed to investigating the existing housing policy system, the land use design layout regulations and the way in which public facilities and services were provided. The outcomes of their opinions became a base for suggestions for improvement. The responses of the returned questionnaires from citizens who had received or who had applied for residential land plots used as base to find out their housing and public facilities and services requirements. The site visit observations were used to find the gaps in the development process for the existing new residential neighbourhood, by comparing these observations with the information gathered in Chapter 3 from the secondary data collections. All the findings from these survey collection methods were presented and analysed in the next stage.

7.2.3 The analytical stage

In this stage all secondary and primary information gathered was presented and analysed. Chapter 5 presented the findings and analysis of structured and semi-structured interviews with professional, the questionnaire responses of both citizens' groups' and the site visit observations to the selected samples of existing new residential neighbourhoods.

The secondary data collected was analysed by MS Word 7 and presented in Chapters 2 and 3. The primary data collected in the empirical stage from the structured interviews and questionnaire was analysed based on the maximum of each sub-section's statements chosen by all different respondents in each closed question section. The total numbers of each subsection were recorded, according to whether the participants chose as strongly-agree, agree, uncertain, disagree and strongly disagree, for each section and presented in tables, through the SSPS system. Tables for the frequencies and percentages were presented. Information from respondents was tested with two variables by the T-Test. For the five professional experts' sectors, the Kruskal-Wallis test was used, because they represented five variables. For the site visit observations the analysis was completed

using tables showing the number of development events, which included houses built and public facilities and services developed. For the analysis of the semi-structured interviews, each question in the interview is analysed related to the subject heading that is linked to the question sections in the structured questions and questionnaire. The answers for each question were presented on a separate sheet. The framework of these heading categories was applied to all the semi-structured interview data. The researcher noted down the statements and comments of the experts. All these findings were linked and discussed in Chapter 6 and used to answer the four main research questions that are presented in the next section.

7.3 Answering the first three research key questions

This section addresses the research answers to the first three key questions in Chapter 1 (see section 1.3). The fourth key question will be answered as part of the recommendations (see section 7.4). The answers can be summarised as follows:

7.3.1 Which housing provision practices might be useful to develop in Oman?

The research process started with the literature review stage to identify different theories and practices related to development process for new residential neighbourhoods in relation to issues such as the housing policy system, land use design layout regulations and implementation of public facilities and services. From the literature reviewed, a conceptual framework was produced to study and propose an approach to improve the development process for new residential neighbourhoods that might be useful for Oman. It appeared, through the literature, that the residential neighbourhood was important in the urban planning environment, as this is the basic unit within city. It is the place where the people live within good physical design and involves a wide range of social activity such as developing healthy communities, empowering residents, developing the local economy and achieving environmental sustainability.

The desirable housing provision practice in Oman can be proposed from the literature findings as follows: the housing policy system should meet the requirements of development of new residential neighbourhoods and control supply and demand with a housing plan and create a physically, economically, socially and environmentally sustainable mechanism to facilitate the provision of homes. Based on that, in order to improve the housing system, there is a need to implement a comprehensive housing policy system using demand and supply criteria and develop the activity of financial institutions and developers. From the study of the Gulf Cooperation Countries' practices,

it was found that Saudi Arabia and Oman are more or less similar in terms of their physical circumstances, which might mean that new housing policy system that is currently applied in Saudi Arabia can be studied and modified to meet Oman's circumstances.

In relation to land use design layout regulations, the design of new residential neighbourhoods should be based on strategic spatial plans on all levels, and include housing zones, as this is important for proper urban planning. The land use design standards for new residential neighbourhoods should meet the needs of the daily lives for all resident groups in the community, which includes social and economic issues, qualities of planning like flexibility, environmental sustainability, education, healthcare, housing and mobility. Housing development needs to be compact and located near existing local communities, jobs and transport connections.

The types of public facilities and services that should be provided by government before new residential neighbourhoods delivered are a prayer places, schools, a health centre, police and fire stations, a park, a post office, and a cemetery and the public services required are roads, electricity, water, sewerage, mobile phone, waste collection service and telephone lines. The commercial centres, nurseries and petrol stations should be developed by the private sector based on market conditions. The coordination for that can be achieved by establishing a committee of relevant actors, appointing a chief executive, creating fewer departments and developing coordinate policies and involving public, private and community sectors as a partnership. Their finance and operation can be achieved by a method of partnership between the government and private sector.

7.3.2 What are the existing obstacles that might slow the development process for new residential neighbourhoods in Oman?

This question focuses on the obstacles that might slow the development process for new residential neighbourhoods in Oman. The answer to this was found by exploring and analysing the existing situation in relation to the existing citizens housing system, the land use design layout regulations applied by relevant organisations and the current method of coordination, finance and operation for the public facilities and services. This included evaluating the rate of existing development by visiting examples that have been delivered in The Governorate of North Al-Batinah, and by interviewing professional experts in housing sector, the results of which are presented in Figure 7.1.

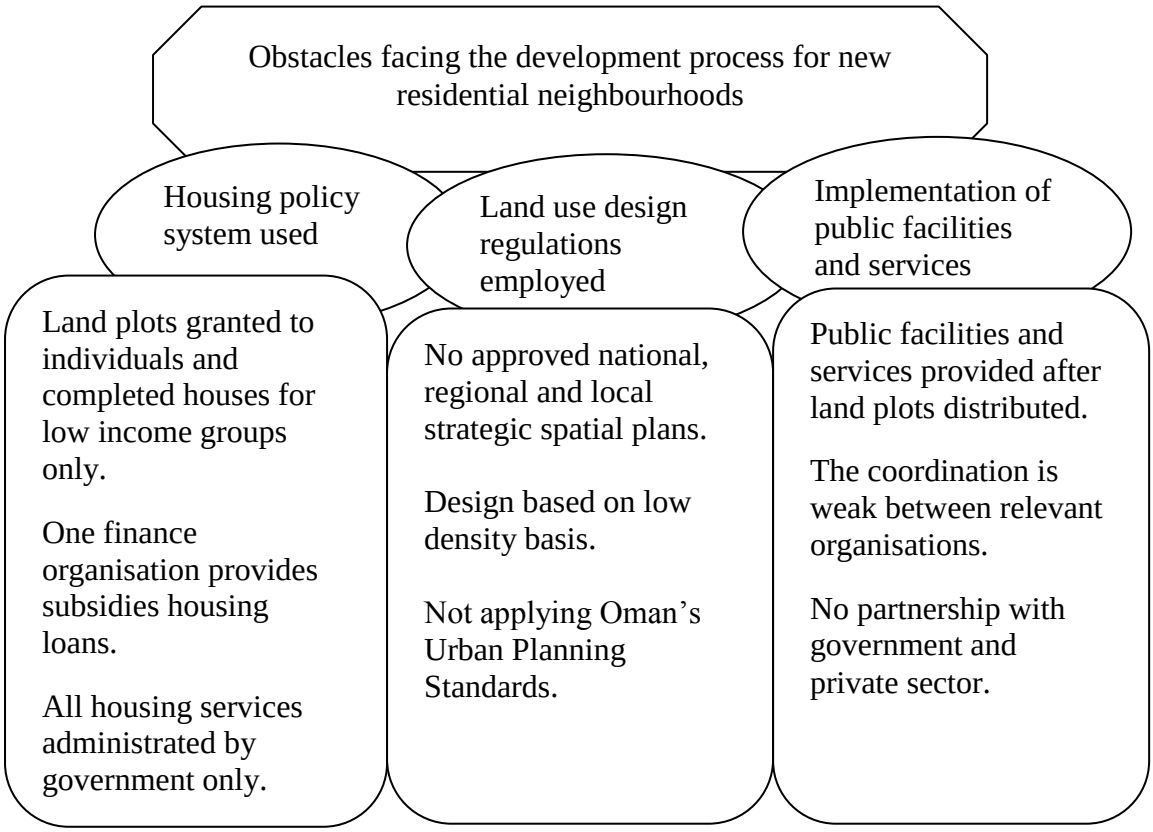

Figure 7.1: Obstacles facing the development process for new residential neighbourhoods.

The housing policy system and urban plans in Oman, since 1970, has been provided within two long term national urban development strategic plans that have been produced for relevant organisations. The first one was from 1975 to 1995 and the second is from 1996 to 2020. In these development plans and up to 2010 end year of this study the housing services concentrated mainly on granting vacant residential land plots for citizens in new areas without public facilities and services. This housing service represents more than 90% of all the housing services, such as provision of housing loans and completed houses. The community actors in housing provision are indirectly involved in this process. They participate through their elected members in the Alshorra Council and the Municipal Council in each governorate. They suggest development of new residential neighbourhoods to relevant organisations, but within those organisations' existing systems, plans and budgets.

Granting individuals male or female residential land plots without public facilities and services has affected the development process for new residential neighbourhoods. Moreover, as there is a single organisation for subsiding housing finance, and there is no systematic linkage between land granting and finance programs, this has had a negative impact upon the development process for new residential neighbourhoods. These

practices have increased the applications for granting residential land plots and have created more pressure on the government to offer them. Moreover, most of the distributed plots are waiting for public facilities and services, and for that reason, most of these land plots often are sold for additional income, and lead to absence of completed houses built by developers. Also, the available housing loans that are offered by other commercial banks are delivered with high interest rates, which are not attractive to citizens.

The spatial strategic plans and land use design standards employed have not met the approved Omani urban planning regulations. In relation to the strategic spatial plan, there is, in fact, no national strategic spatial plan. This is because the national spatial planning is done through urban development plans, which include no clear regional plans, master plans and housing zones on national or local levels. Moreover, most of the old urban plans are based on secondary data collection. All the relevant organisations link their development process with their own plans and approved budgets. Regarding the land use design standard, although there are Oman Urban Planning Standards laid down by Supreme Committee of Town Planning (2000), most of the relevant organisations have not linked their development process to these. For example, the allocation of the new housing areas is chosen by the staff of the Ministry of Housing, and usually on flat, open, unlevelled government land, which may not have links with jobs, main roads or public services. In relation to sustainable housing design, the distribution of vacant land plots based on the existing system does not apply the approved standards and it has negatively affected the environment by consuming a lot of open spaces. The residential and public facilities and services plots are designed based on a low density basis, and a separate design and development process for houses and public facilities and services, which affects the development of the new residential land plots distributed.

Regarding the existing coordination, finance and operation in providing enough public facilities and services in the new residential neighbourhoods, the study found that there is weak coordination between allocated housing, building services and the financial programmes offered. This is because of disassociation between the design stage and development stage. The design of new residential land plots is carried out by the Ministry of Housing, and the design of public facilities and services is provided by the relevant organisations at a later stage. The finance and operation for these are provided by the government after building houses and depending on priority orders and budgets, and there is no partnership with the private sector for developing new residential neighbourhoods.

All of these practices and their consequences are obstacles that appear to be having slowed the development process for new residential neighbourhoods in the Sultanate of Oman. For this reason there is a need for specific actions that can work to counteract this slowness, as is explained in the following section.

7.3.3 What are the types of housing policy system, land use design layout regulations and public facilities and services needed that might improve the development process for new residential neighbourhoods in Oman?

The study answered this question by investigating and analysing the views of the professional experts and citizens granted or applied for residential land plots (see Figure 7.2).

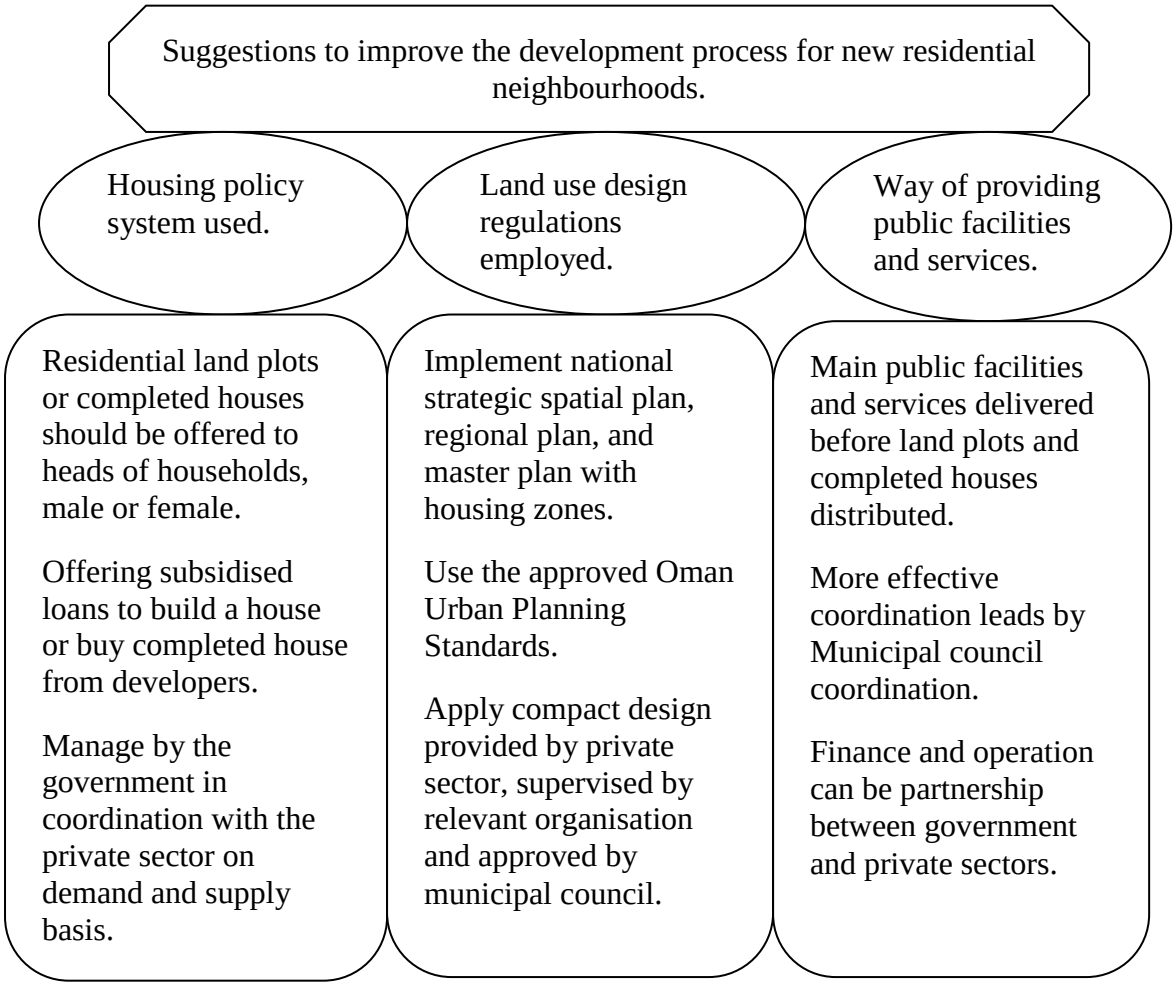

Figure 7.2: Suggestions to improve the development process for new residential neighbourhoods in Oman.

Firstly, for the distribution of housing services, the granting of residential land plots and housing finance must be distributed to head of households, male or female, not individuals and the rule, need to be observed. Two types of loans were identified by the

respondents, in order to better manage the subsidised loans. This can be managed by offering subsidised loans either to build a house or to buy a completed house from developers, and allowing the citizens to choose. Importantly, the housing finance programs should be managed by the government, in coordination with the private sector, through contractors, developers and finance organisations such as commercial banks and finance agencies. This can be achieved by involving banks and finance agencies to work on the finance programmes and the government paying the subsidies for the interest only. For that, the residential land plots granted by the Ministry of Housing should be linked with subsidised housing loans for households to build a house. For buying a completed house, a house that was constructed by developers should be managed to transfer fees directly to developers on subsidies house loan through a finance agency then delivered to the citizen.

The design of new residential neighbourhoods needs to be based on a national strategic plan and approved land use design standards. It is important to implement a national strategic spatial plan, together with regional plans, and a master plan with housing zones. This can be combined with a plan for economic, social and environment to distribute development, balance the population with job opportunities and implement new housing areas. It could be supervised by the Higher Planning Council. However, relevant organisations and Omani experts should be involved, in order to represent Omani lifestyles and culture, and the design and planning should be based on site observations and accurate data collection. The Minister's Council, State Council and Alshorra Council need to jointly approve the national strategic spatial plan because they represent all the parties that belong to the government and the community. The plan should allocate different land use zones, which will help planners to work on clear detailed plans for housing and situate new projects in good locations, avoiding areas of flood-risk.

The relevant organisations need to use the approved land use design standards already implemented by the Supreme Committee of Town Planning (2000). These approved design standards are basis for compact design, including design of public facilities and services routes and being within walking distance of public facilities and services. Interestingly, this is expected to increase walking and cycling and minimise travel by cars and thus lead to a healthy lifestyle for citizens. Moreover, it will integrate sustainable economic, social and environmental regulations. The design needs to be implemented by private engineering offices through tenders and supervised by the Ministry of Housing and approved by relevant organisations and municipal councils.

The public facilities and services should be delivered at the time or before residential land plots are distributed and houses constructed. This should be for all the required services for all ages and social groups and can be achieved through coordination between the relevant organisations, and coordinating their finance and operation.

As suggested by professional experts and citizens, the first five public government facilities that should be developed before residential plots are distributed should be prayer places, roads, schools, health centres and then parks and play grounds. The community hall, cemetery and police and fire station were needed once the area occupied. For privately-own public facilities, the priorities are commercial areas and nurseries, then a petrol station. For the public services that should be developed, the priorities are water, electricity, mobile phone, sewage and waste collection. It was considered that the telephone line and post office services could be left until the neighbourhood is occupied.

In relation to the coordination between related actors, it was suggested that the municipal council should lead and be more effective in coordination at all stages of the development process. The budgets should be specified for all public facilities and services in residential neighbourhoods and they should be constructed and operated by the concerned organisation at the same time. Regarding their finance and operation, the government facilities should be financed and operated by the appropriate government authorities. Privately-owned public facilities should be financed and operated by the concerned land owner and investors. Public services should be financed and operated by government organisations and government investment companies. This is because the public facilities and services should be provided by government and private investors and the customers should pay for only for the services consumed, like electricity and telecommunications.

7.4 Recommendations

This section presents some recommendations, which include responses to the key question four, posed in chapter one: *What are the factors that might improve the development process of new residential neighbourhoods in Oman?* Based on the findings, some suggestions that might improve the development process for new residential neighbourhoods in the Sultanate of Oman are as follows.

Amended the existing housing policy system and law (LREL & SHL) to be based on demand and supply criteria as follows:

- Housing priority might be offered to heads of households, males or females, in areas serviced with public facilities and services.
- Study to combined registered applications for all related households and grant land plots for families that do not own land or a completed house.
- Work to provide several housing finance options for different income groups, such as a housing loan to build or to buy a completed house from developers.
- The subsidised housing might be directed to target low-income groups to enable them to build or buy a completed house from developers, others can buy completed houses or serviced land plots at market prices.
- Administration of housing supply and housing finance could be achieved through a partnership between the government and private sector.
- Relevant organisations might offer unadulterated government land to developers to be developed for new residential neighbourhoods on market basis.
- Housing finance can be given through several finance agencies, by processing housing loans to different household groups and encouraging the government to pay subsidised rates for low-income groups.
- Saudi Arabia's new housing system, which includes several housing type services and controls the development through vacant land taxes might benefit from further study and application in Oman under special circumstances.
- It might be required to create a government owned company under the Ministry of Housing to oversee the supply of affordable housing situations, to help implementing the infrastructure and create sustainable income generating business models.

Accelerate the execution of national strategic spatial plans, regional plans, master plans and housing zones (ONSS, RSP & LMP) and employ approved upgraded Oman land use regulations, to include the following:

- Distribute development, balance the population with job availability, and create new housing areas.
- Devise a combined plan to cover economic, social, environment and land uses and provide each governorate its own resources and better economic activities.
- Provide jobs for people and accommodation near their work places and produce a policy that considers citizens' needs.
- Involve relevant organisations, which will be able to work on the ground, and Omani experts, in order to consider Omani lifestyles and culture.

- Provide master plans with housing zones to allocate different land uses to help planners work on clear detailed plans and to situate new projects in safe and appropriate locations, avoiding areas of flooding.
- Approve (ONSS) by the Minister's Council, State Council and Alshorra Council, because these represent all the parties of government and the local communities.
- Relevant organisations need to use approved design standards and apply land use design regulations to implement new residential neighbourhoods.
- The design should be based on a compact design, and approve public services routes in the design stage.
- It is advisable that the design of any new residential neighbourhoods be implemented by the private sector through local consultant engineering offices and that the Ministry of Housing staff should supervise the design, which would then be approved by relevant organisations and local municipal councils.

Provide public facilities and services by privatisation in coordination with relevant organisations, based on:

- Public facilities and services should be delivered before land plots and completed houses are distributed to citizens, and allocation linked with genuine housing enquiries banded with limited time for construction.
- Developers can be requested to invest in providing infrastructure for the planned areas under agreed and approved regulations between them and relevant organisation.
- It might be useful to redesign not developed distributed (over-allocated) residential land plots through private sector investments.
- The Municipal Council in each governorate can direct the coordination between relevant organisations to determine priorities when allocating sites for developers.
- Relevant organisations might need to share the cost of infrastructure with developers by subsidising the provision of basic services in places that do not appeal to investors.

These factors should be presented to decision makers at the related organisations, so that they can study them and make some improvements, while also implementing new rules to further the future development process for new residential neighbourhoods in the Sultanate of Oman.

7.5 Contributions and limitations of the research

The strength of this research is in providing detailed information about the existing development process for new residential neighbourhoods in the sultanate of Oman in relation to the housing policy system, the land use design layout regulations and the implementation of public facilities and services. This has allowed the researcher to explore the relevant information from concerned organisations regarding these issues, to identify the existing obstacles that face their development and provide some suggestions to be studied for improvement. The research involved the participation of professional experts relevant to the housing sector, to draw their rich experience and help to find some solutions to improve the development of new residential neighbourhoods. A sample of citizens also presented their housing requirements, in this research, which clarified for the providers' organisations the housing services they needed.

The results from the literature review and site visit observations also improved the existing knowledge and showed the obstacles that affect the development process. The outcomes from other countries' approaches and practices, opinions analysed from interviews with professional experts' and results from the citizens' questionnaires are of concern to be studied by representatives from relevant organisations. This is can assist them in reviewing the procedures for granting residential land plots, housing finance and their administration procedures, and highlights the importance of providing a strategic spatial plan, applying approved land use design standards and providing the necessary public facilities and services. In other words, the findings have identified major issues of concern which might help the relevant authorities to respond to citizens' requirements and achieve sustainable economic, social and environmental development for the new residential neighbourhoods. Moreover this research is expected to be helpful for other future related studies by provided important data about the housing policy system and the development process for new residential neighbourhoods in the Sultanate of Oman.

On the other hand, the study recognised some limitations, such as there are few publications that discuss housing and town planning in Oman, especially in relation to the housing policy system, land use planning and provision of public facilities and services. This has limited the researcher's ability to find and include different published opinions about these elements in the study. There is also limited amount of official data available about the housing sector in approved long and short terms development plans. It should also be noted that the citizens' samples and site visit to examples of planned areas were

taken from one governorate in Oman only, whereas the results of this research are intended to be used for all other governorates.

Because of these limitations, the research presents only the general obstacles slowing down the development process for new residential neighbourhoods and some suggestions to improve these.

7.6 Areas for further research

This research has tried to present in general the obstacles that slow the development of new residential neighbourhoods in the Sultanate of Oman and suggest some actions to improve it in relation to housing policy system, land use design layout regulations and provision of public facilities and service. These obstacles and suggestions for improvement should be considered in more detail and further research should be carried out for each issue. Therefore, further research could aim to identify the causes for each obstacle, and propose more specific solutions for improvement by involving private sector and community relevant organisations. Also, further research could study the situation in each governorate in Oman, to pinpoint this problem in relation to their particular needs and circumstances.

Furthermore, the housing developers and privatisations of provision of houses and public facilities and services need to be studied in detail, to provide some recommendations that would help the relevant organisations. This might help to improve the method they manage their finance and operation and upgrade the partnership between the government and private sector. Another issue that was revealed in this research, which should also provide a basis for further research, is the condition of the housing market and what should be done to improve it, which would help in balancing demand and supply and providing a greater variety of housing choices for consumers.

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APPENDICES

Appendix A

The suggested table of alternatives approach by Sivam et al. (2001)

Stage	Sub-stage	Alternative
Planning	Plan preparation	Central/federal government State or metropolitan agency Consultant to state of federal government Independent agency, responsible to federal or state government
	Plan approval	National cabinet Independent arbitrator Agency preparing the plan State government or minister-in-charge
Land assembly	Land acquisition	Compulsory acquisition by government Government purchase in open market Developer with delegated power of compulsory acquisition Statutory authority with power of compulsory acquisition Land pooling/re-adjustment(LP/R)
	Compensation	Plot reconstitution(PR) Market rate Based on valuation by registered value of land parcel
	Finance to developing agency	Government fixed rate Multiplicity of agencies Income tax rebate on housing investment Autonomous bodies Commercial bank Government
Implementation	Land development	National agency State/ metropolitan/ agency Joint venture (public and private partnership) Private developers Consultants to government
	Housing construction	Independent agency responsible to national or state government Government Private Joint venture between public and private sector individuals Housing cooperation Non government agencies Autonomous bodies Cooperatives Multiplicity of developers
Disposal	System of disposal	Government Private Joint venture between public and private sector Housing cooperation
	Tenure	Autonomous body or developing agency Multiplicity of choices Freehold Leasehold
	Finance	Combination of freehold and leasehold Rental Compulsory provident fund Multiplicity of agencies Commercial banks Financial agencies

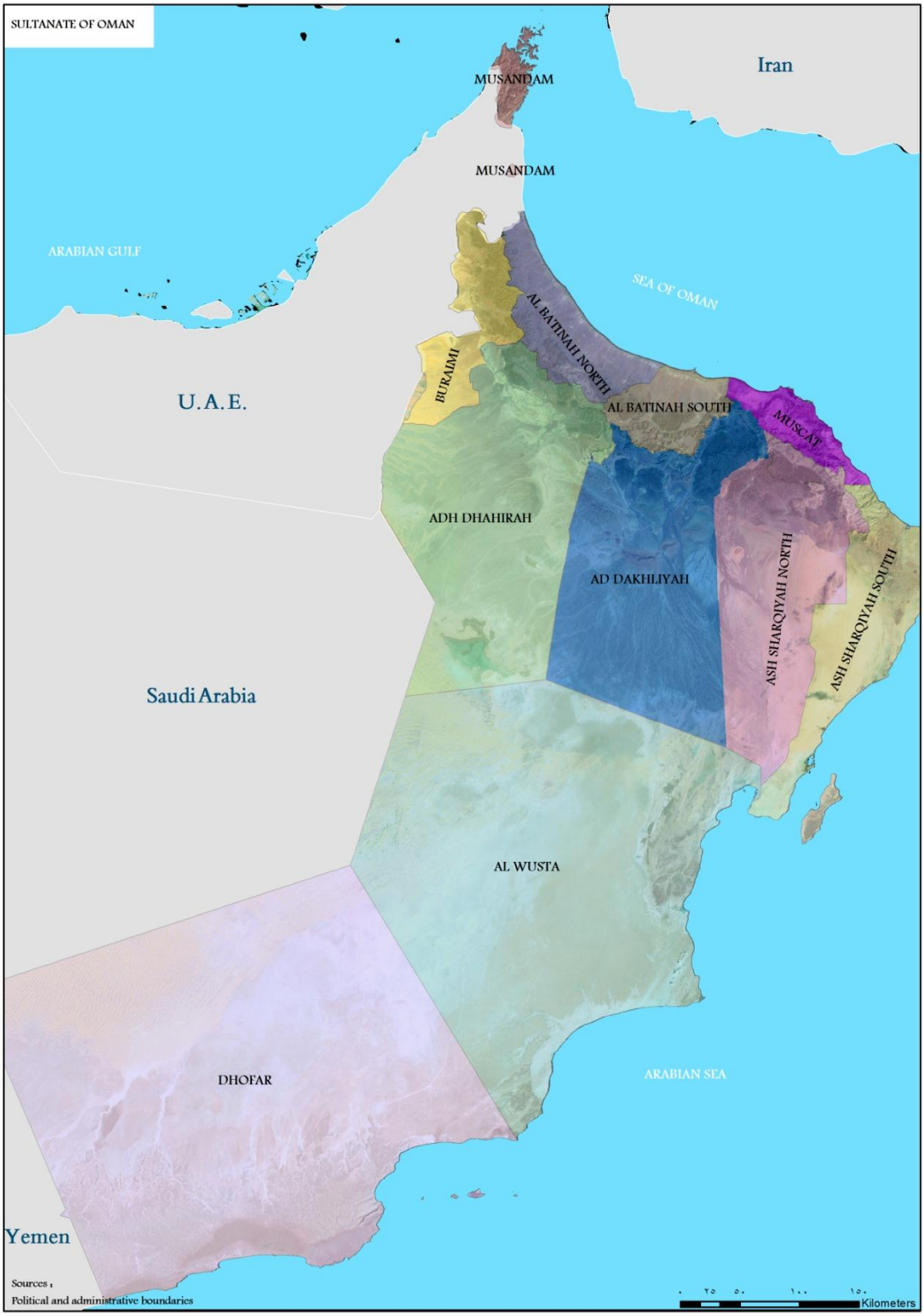
Appendix B

The main points of liveable cities for more sustainability in Wheeler's (1998)

- Efficient land use, by making land use compact and creating urban growth boundaries through the increase of land use within the building areas and preserving the green and open spaces to be safe, attractive and liveable, with a change in relationship between people and land for more sustainability.
- Less automobile use with better access, by providing mixed land use development, higher priority for walking and cycling paths, lower priority for cars, pricing and taxation mechanisms and reducing the number of people travelling.
- Efficient resource use with less pollution and waste; energy should be conserved and materials recycled. To reduce pollution it is necessary to have good transport demand management system and to provide added technology to industry with recycling of waste material and less energy resource consumption.
- Restoration of natural systems, this includes the natural reservation of water, open spaces, trees, and blue and green places which makes a connection between people and cities.
- Housing and living environments; by provide reasonable types of housing, it requires an active government and workable neighbourhood design on a sustainable basis, to serve the residents with basic facilities and services.
- Healthy social ecology; the concerned government agencies and private organisation should plan by looking at previous developments to solve the social problems of communities, opportunity and empowerment.
- Economics; to move the economy towards sustainable development, it needs local cooperation in orienting the economy, in terms of ownership, control, investment, resources and production, this is activated by a mixture of market mechanisms, government action and incentives for social and environmental responsibility in economic decision making.
- Community involvement; it is important for the decision makers to allow community organisations to participate in planning and design.
- Preservation of local culture, which consists of the history of the people and place, through the government encouragement of crafts, cultural practices and local building material.

Appendix C

Map of the Sultanate of Oman



Source: Implemented from National Centre for Statistics and Information.

Appendix D

Professional experts' structured and semi-structured interview questions (English translation)

Dear Sir,

I am pleased to inform you that I am a PhD student in the Institute of Building and Urban Design at Heriot-Watt University, Edinburgh, United Kingdom. I would really appreciate it if you would complete the enclosed closed question form.

This survey is part of my doctoral research which focuses on the development process for new residential neighbourhoods in the Sultanate of Oman. The questions in the survey are designed to gather information to improve the development of new housing areas in relation to granting residential land plots, housing finance, land use design layout regulations and provision of public facilities and services.

I would be most grateful if you would help with this research by providing me with some information. Please complete the closed question form and contact me to collect it and appoint a meeting with you for the open question interview on my mobile phone number or email as soon as possible.

All your responses will be kept strictly confidential. Only I will have access to your individual survey responses.

If you have any inquiries, please do not hesitate to contact me on my mobile number or my email.

Successful completion of this study depends on your assistance. Thank you for taking the time to assist me in this research.

Yours sincerely

Mohammed Al-Muttawa
PhD student in urban studies
Institute of Building and Urban Design
School of the Built Environment
Heriot-Watt University,
Edinburgh, United Kingdom
Mobile: xxxxxxxx
E-Mail: xxxxxxxxxxxx

Professional expert's structured closed questions

Please choose for each statement by circling any of strongly-agree, agree, uncertain, disagree or strongly-disagree.

Section A: Suggested system for granting residential land plots:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
1	Grant the head of household male or female land plot with public facilities and services.					
2	Grant male and female of 23 years and above land plot without public facilities and services.					
3	Grant the land plot near workplaces or original place of residence.					

Section B: Suggested approach to housing finance:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
4	Grant the head of household government subsidised housing loan to build a house.					
5	Grant the head of household government subsidised housing loan to buy a completed house.					
6	Administered by government in coordination with private sector.					

Section C: Suggest system for strategic spatial plan:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
7	It is important to have strategic spatial plans.					
8	Supervised by The Higher Planning Council.					
9	Approved by Minister's Council, State Council and Alshorra Council.					
10	Provide master plan and housing zones.					

Section D: Suggested system to design the new residential neighbourhood:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
11	Designed by approved consultants					
12	Supervised by Ministry of Housing and concerned organizations.					
13	Employ Oman urban planning standards.					
14	Involve sustainability and environmental regulations.					
15	Include the utilities' routes in the design and approve them.					
16	Approved by relevant organisations and Municipal Council.					

Section E: Suggested public facilities and services that should be developed before residential land plots are distributed:

Q	Suggestion		*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
17	Government public facilities	Schools					
		Roads					
		Mosque					
		Health centre					
		Park and play ground					
		Police and fire station					
		community hall					
		Grave yard					
18	Private public facilities	Commercial					
		Nursery					
		Petrol station					
19	Public services	Electricity					
		Water					
		Telephone line					
		Mobile phone					
		Sewage					
		Waste collection					
		Post office					

Section F: Suggestions for the coordination, finance and operating system for developing public facilities and services:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
20	The provision of public facilities and services needs more effective coordination in the design and provision stages.					
21	The government should build and operate government public facilities.					
22	The private sector should build and operate the private public facilities.					
23	The government investment companies should build and operate public services.					
24	The citizens should pay 10% of the cost for the public services.					

Section G: Obstacles that might face the development of new residential neighbourhoods:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
25	Citizens housing system targets the individuals instead of households.					
26	Few methods of housing finance.					
27	Absence of strategic spatial plans.					
28	Mismatch to design standards.					
29	Lack of public facilities and services.					
30	Limited coordination of relevant organisations.					

Contact to return the question form after answered to the researcher on his mobile: xxxxxxxxx or email: xxxxxxxx

Professional expert's semi-structured open questions interview

Please contact the researcher on his mobile: xxxxxxxxx or email: xxxxxxxx to appoint a suitable time for you for the interview to discuss and answer the open questions the following open questions:

1- Does the existing citizen' housing system, which includes granting land plots and housing finance, target households and does it works to develop new residential neighbourhoods?
2- How can the strategic urban plan, regional plans and master plans improve the housing system and the development of new residential neighbourhoods?
3- What are the main elements that should be considered in designing new housing areas which meet citizen's needs, housing sustainability and environmental issues?
4- Who should coordinate, finance and operate the public facilities and services?
5- What are the factors that might improve the development of new residential neighbourhoods?

Appendix E

Citizens Questionnaire form (English translation)

Dear Sir,

I am pleased to inform you that I am a PhD student in the Institute of Building and Urban Design at Heriot-Watt University, Edinburgh, United Kingdom. I would really appreciate it if you would complete the enclosed questionnaire form.

This survey is part of my doctoral research which focuses on the development process for new residential neighbourhoods in the Sultanate of Oman. The questions in the survey are designed to gather information to improve the development of new housing areas in relation to granting residential land plots, housing finance and provision of public facilities and services.

I would be most grateful if you would help with this research by providing me with some information. Please complete the closed question form and contact me to collect it on my mobile phone number or email, as soon as possible.

All your responses will be kept strictly confidential. Only I will have access to your individual survey responses.

If you have any inquiries, please do not hesitate to contact me on my mobile number or my email.

Successful completion of this study depends on your assistance. Thank you for taking the time to assist me in this research.

Yours sincerely

Mohammed Al-Muttawa
PhD student in urban studies
Institute of Building and Urban Design
School of the Built Environment
Heriot-Watt University,
Edinburgh, United Kingdom
Mobile: xxxxxxxx
E-Mail: xxxxxxxxx

Section A: Personal data

Residential land plot: ◯ Granted ◯ applied

Occupation: …….. Organisation: ……

Age: …… Gender: ……..Social status: ……number of household members: ……..

Please choose for each statement by circling any of strongly-agree, agree, uncertain, disagree or strongly-disagree.

Section B: Suggested system for granting residential land plots:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
1	Grant the head of household male or female land plot with public facilities and services					
2	Grant man and woman of 23 years and above land plot without public facilities and services					
3	Grant the residential land plot near workplaces or original place of residence.					

Section C: suggested approach to housing finance:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
4	Grant the head of household government subsidised housing loan to build a house.					
5	Grant the head of household government subsidised housing loan to buy a completed house.					
6	Administered by government in coordination with private sector.					

Section D: suggested public facilities and services that should be developed before residential land plot are distributed:

Q	Suggestion		*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
7	Government public facilities	Schools					
		Roads					
		Mosque					
		Health centre					
		Park and play ground					
		Police and fire station					
		community hall					
		Grave yard					
8	Private public facilities	Commercial					
		Nursery					
		Petrol station					
9	Public services	Electricity					
		Water					
		Telephone line					
		Mobile phone					
		Sewage					
		Waste collection					
		Post office					

Section E: Suggestions for the finance and operating system for developing public facilities and services:

Q	Suggestion	*Strongly agree*	*Agree*	*Uncertain*	*Disagree*	*Strongly Disagree*
10	The government should build and operate government public facilities.					
11	The private sector should build and operate the private public facilities.					
12	The government investment companies should build and operate public services.					
13	The citizens should pay 10% of the cost for the public services.					

Coordinate to return the questionnaire to the researcher on his mobile: xxxxxxxxx or email: xxxxxxxx

Appendix F

Pilot survey (English translation)

As part of my doctoral programme in Urban Studies, I am conducting a pilot study to refine a questionnaire that will be used in an extensive survey. This study aims to investigate the obstacles that face the development process for new residential neighbourhoods in the Sultanate of Oman and suggestions to improve them.

Your responses will be treated in strict confidence.

You are kindly requested to:

1. Complete the following questions according to the instructions given.

2. Answer the questions attached to the end of the questionnaire. These questions are designed to collect your comments and advice on how to improve the survey before it is undertaken.

Many thanks for your time, participation and advice.

Dear Sir

This is a pilot study, may I ask you please to read the following question and answer them with your comments. Your answers will be given careful consideration.

- How long did it take you to complete the question form?

……

- Were the instructions clear?

…….

- Were any of the questions unclear or ambiguous? If so, please say which and why.

……

……

- Did you object to answering any of the questions? If so, please explain why.

……

……

- Was the layout of the questionnaire clear/interesting?

……

……

- Any other comments:

……

……

Appendix G

Professional experts' structured closed questions interview results

Professional experts' views about granting residential land plots

Categories		F/P	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
1	Grant the head of household male or female residential land plot with public facilities and services	F	60	16	3	0	1
		P	75	20	3.75	0	1.25
2	Grant male and female of 23 years and above residential land plot without public facilities and services	F	3	12	8	28	29
		P	3.75	15	10	35	36.25
3	Grant the residential land plot near workplaces or original place of residence	F	40	21	14	4	1
		P	50	26.25	17.5	5	1.25

Professional expert's views about housing finance approaches

Categories		F/P	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	Grant the head of household government subsidised housing loan to build a house.	F	51	16	4	3	1
		P	63.75	20	5	3.75	1.25
2	Grant the head of household government subsidised housing loan to buy a house.	F	43	28	4	3	2
		P	53.75	35	5	3.75	2.5
3	Administered by government in coordination with private sector.	F	47	19	8	5	1
		P	58.75	23.75	10	6.25	1.25

Professional experts views about providing strategic spatial plan, regional plans and master plans with housing zones for each governorate

Categories		F/ P	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
1	It is important to have strategic spatial plans.	F	70	9	1	0	0
		P	87.5	11.25	1.25	0	0
2	Supervised by The Higher Planning Council.	F	52	21	4	1	2
		P	65	26.25	5	1.25	2.5
3	Approved by Minister's Council, State Council and Alshorra Council.	F	54	13	10	2	1
		P	67.5	16.25	12.5	2.5	1.25
4	Provide master plan and housing zones.	F	64	16	0	0	0
		P	80	20	0	0	0

Professional expert's views about the design layout of new residential neighbourhoods

Categories		F/ P	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
1	Designed by approved consultants.	F	48	21	8	1	2
		P	60	26.25	10	1.25	2.5
2	Supervised by Ministry of Housing and concerned organisations.	F	51	24	2	3	0
		P	63.75	30	2.5	3.75	0
3	Employ Oman urban planning standards.	F	51	18	7	2	2
		P	63.75	22.5	8.75	2.5	2.5
4	Involve sustainability and environmental regulations.	F	68	11	1	0	0
		P	85	13.75	1.25	0	0
5	Include the utilities' routes in the design and approve them.	F	76	3	1	0	0
		P	95	3.75	1.25	0	0
6	Approved by relevant organisations and Municipal Council.	F	50	21	6	2	1
		P	62.5	26.25	7.5	2.5	1.25

Professional expert's choice order for government public facilities to be provided before residential land plots are distributed

Categories			Views
Government public facilities	1	Mosque	80
	2	Roads	80
	3	School	78
	4	Park and play ground	77
	5	Health centre	76
	6	Community hall	71
	7	Police and fire station	66
	8	Grave yard	61

Professional experts' choice order for private public facilities to be provided before residential land plots are distributed

Categories			Views
Private public facilities	1	Commercial	75
	2	Nursery	70
	3	Petrol station	58

Professional experts' choice order for public services to be provided before residential land plots are distributed

Categories			Views
Public services	1	Electricity	80
	2	Water	80
	3	Mobile phone	78
	4	Waste collection	78
	5	Sewage	78
	6	Telephone line	76
	7	Post office	69

Professional experts' views about coordination, finance and operation of public facilities and services

Categories		F/P	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
1	The provision of public facilities and services need more effective coordination in the design and provision stages.	F	70	9	0	1	0
		P	87.5	11.25	0	1.25	0
2	The government should build and operate government public facilities.	F	59	19	2	0	0
		P	73.75	23.75	2.5	0	0
2	The private sector should build and operate the private public facilities.	F	38	29	9	1	3
		P	47.5	36.25	11.25	1.25	3.75
3	The government investment companies should build and operate public services.	F	47	23	5	4	1
		P	58.75	28.75	6.25	5	1,25
4	The citizens should pay 10% of the cost for the public services.	P	16	14	17	21	12
		F	20	17.5	21.25	26.25	15

Professional expert's views about the obstacles facing the development of new residential neighbourhoods

Q	Suggestion	F/P	Strongly agree	Agree	Uncertain	Disagree	Strongly Disagree
27	Citizens housing system targets individuals instead of households.	F	55	19	4	2	0
		P	68.75	23.75	5	2.5	0
28	Few methods of housing finance.	F	31	32	13	4	0
		P	38.75	40	16.25	5	0
29	Absence of strategic spatial plans.	F	58	16	3	2	1
		P	72.5	20	3.75	2.5	1.25
30	Mismatch to design standards.	F	36	29	14	1	0
		P	45	36.25	17.5	1.25	0
31	Lack of public facilities and services.	F	50	26	0	2	2
		P	62.5	32.5	0	2.5	2.5
32	Limited coordination of relevant organisations.	F	54	23	2	1	0
		P	67.5	28.75	2.5	1.25	0

Professional expert's semi-structured open-question interview results

1- Does the existing citizen' housing system, which includes granting land plots and housing finance, target households and does it works to develop new residential neighbourhoods?

Urban planners: • Plots should not be granted to individuals. • One of the causes for slowing the development of new residential neighbourhoods. • Make apartments building with all public facilities and services. • Separate housing units and increase the housing built up areas. • Buy house from the market as per buyer's choice.
Municipal experts: • Buy or build house from the market as per citizen's choice.
Housing experts: • Plots should not be granted to individuals. • Flexible choice to help both government and citizens to cover granting residential land plot applications. • Build separate housing units and increase the houses build up areas as household members.
Lawyers: • Buy or build house from the market as per citizen's choice.
Contractors: • Build separate housing units and increase the houses build up areas as household members. • Build by contractors and management of buying process between government and private sector.
Real estate experts: • Buy or build house from the market as per citizen's choice. • Separate houses units and increase the house build up areas.
Engineering consultant managers: • Buy house from the market as citizen's choice. • Build by qualified higher grade contractors.
Finance agent managers: • Granting plots to individuals will improve land market by increasing the supply, so will reduce prices. • Build or buy house with facilities and services
Academics: • Buy or build house from the market as per citizen's choice.
Public facilities managers: • Buy or build house from the market as per citizen's choice.
Public services managers: • Buy or build house from the market as per citizen's choice. • Housing system should target families by implementing residential neighbourhoods with public facilities and services.

2- How can the strategic urban plan, regional plans and master plans improve the housing system and the development of new residential neighbourhoods?

Urban planners: • By applying strategic plans and master plan with zoning, this will control the land uses and direct the concerns for detail planning. • It will work to plan for sustainability to balance the needs over a long period and to provide sustainable services. • This will improve the availability of facilities and services and revise the housing policies.
Municipal experts: • Make regional plan and master plan for each governorate based on their data. • This will improve local planning and developments, and give the future vision for the places.
Housing experts: • This will make the planners make use of the regional resources for each governorate development. • All the governorates needs regional and master plan for their future development. • The regional plan will help to improve each governorate in relation to their population and business activities.
Lawyers: • This will revise the existing planning and redirect and correct the planning to meet future requirements. • This can be done by collecting related data through expert consultants and doing research on the citizens' requirements. • This will give clear vision for future urban plans and budgets required
Contractors: • Involve all related organisations and provide services which will accelerate housing construction.
Real estate experts: • Each governorate needs special regional plans to meet their potentials and specialties.
Engineering consultant managers: • Involve all facilities and services in planning and include local community representative in setting strategic plans.
Finance agent managers: • Involve all facilities and services in planning. This will help to provide suitable housing for the citizens.
Academics: • Make use of related research in strategic planning. • Evaluate each governorate in relation to their specific urban, social and economy then plan to develop them by new planning, change and urban extension and decide which projects are needed first.
Public facilities managers: • Evaluate the present and plan for future in strategic plans. • Plan the real requirements for each governorate.

Public services managers: • Involve the culture of the community in planning and plan with facilities and services. • Study the individual requirements for each governorate to improve all of them.

3- What are the main elements that should be considered in designing new housing areas which meet citizens' needs, housing sustainability and environmental issues?

Urban planners: • Provide all needed facilities and services to be reached by walking, to make people healthy and reduce cars and make a safe environment. • Use the approved town planning regulation in Oman urban planning handbook and citizen cultural lifestyle.
Municipal experts: • With facilities and services and bigger plot area and including daily living culture. • Divide the plan area into plots zones of one story, two stories and three stories.
Housing experts: • With facilities and services connected with main roads. • The planned area should meet citizen cultural lifestyle. • Include providing open spaces.
Lawyers: • The planned area should meet citizen cultural lifestyle. • Providing public facilities and services.
Contractors: • With in housing zoning only with facilities and services.
Real estate experts: • The planned area should meet citizen cultural lifestyle. • Providing public facilities and services. • Planned by expert planners.
Engineering consultant managers: • The planned area should meet citizen cultural lifestyle. • Providing public facilities and services.
Finance agents managers: • The planned area should meet citizen cultural lifestyle. • Providing public facilities and services.
Academics: • The planned area should meet citizen cultural lifestyle. • Providing public facilities and services.
Public facilities managers: • The planned area should meet citizen cultural lifestyle. Providing public facilities and services.
Public services managers • The planned area should meet citizen cultural lifestyle. Providing public facilities and services.

4- Who should coordinate, finance and operate the public facilities and services?

Urban planners: • The level and amount of community participation is good enough at this stage. • The budgets should be specified for all development issues. • Provided by government and before land distribution and some services by government companies in partnership with private sector
Municipal experts: • The coordination is insufficient. • The budgets should be specified for all development issues. • Provided by government and before land distribution. • Facilities paid by government, private facilities by private sector and can be invested by local people living in the same housing areas and services by government companies and locals pay 10% of the cost.
Housing experts: • The coordination is insufficient. • The budgets should be specified for all development issues. • Provided by government and before land distribution and citizen pay for their consumption and some services by government companies. Additional payment in investing in housing, commercial and industrial areas only. • Facilities by government and services by private sector.
Lawyers: • The coordination is insufficient. • The budgets should be specified for all development issues. • Provided by government and before land distribution
Contractors: • The coordination is insufficient. • The budgets should be specified for all development issues. • Provided by government and before land distribution and paid totally by government.
Real estate experts: • The coordination is insufficient. • The budgets should be specified for all development issues. • Provided by government and before land distribution

Engineering consultant managers: • The coordination is insufficient. • The budgets should be specified for all development issues. • Provided by government and before land distribution and some services by government companies. • The cost of 10% added within land plot fees.
Finance agent managers: • The coordination is insufficient. • The budgets should be specified for all development issues. Provided by government and before land distribution, the citizens should pay not more than 5% for the services.
Academics: • The coordination is insufficient.

• The budgets should be specified for all development issues. Provided by government and government companies before land distribution and citizens pay for their consumption.
Public services managers: • The coordination is insufficient. • The budgets should be specified for all development issues. Provided by government and before land distribution.

5- What are the factors that might improve the development of new residential neighbourhoods?

Urban planners: • Deliver new housing areas with facilities and services. • Make data base and involve local community in development.
Municipal experts: • Take in account cultural lifestyle and plan for it in use with urban planning regulations. • Give the local planning tenders to international or partnership engineering consultants to make use their experience with Omani special requirements.
Housing experts: • Deliver new housing areas with facilities and services. • Revise the housing policy to target the households and make use of private places within urban areas and increase open spaces within housing areas. • Increase the coordination between related organisations and improve employee skills in housing sector and construct data base.
Lawyers: • Deliver new housing areas with facilities and services. • Revise the housing policy to target households and make use of private places within urban areas and increase open spaces within housing areas.
Contractors: • Extend the planning to existing housing areas and plan private unused areas within urban areas. • Give the local planning tenders to international or partnership engineering consultants to make use of their experience with Omani special requirements.
Real estate experts • Deliver new housing areas with facilities and services.
Engineering consultant managers: • Distribute the development in all governorates to make people live and work in any area. • Increase the qualification skills for employee of relevant organisations.
Finance agent managers: • Deliver new housing areas with facilities and services.
Academics: • Design includes some activities for student regarding the important of land for development and housing policies.
Public services managers: • Implement town planning law to be used for delivering new housing areas, more developed than the urban planning handbook. • Deliver new housing areas with facilities and services.

Appendix H

The citizens' questionnaire results

General information

Citizen Groups	Gender		Social Status		Occupation sector		Ages		Household members	
	Male	Female	Married	Single	Gov.	Private	23 < 45	More 45	1<5	More 5
Applied	43	107	112	38	123	27	145	5	92	58
Granted	126	24	133	17	122	28	119	31	81	69

Citizens' views about the granting residential land plots

Categories		F / P	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
			A	G	A	G	A	G	A	G	A	G
1	Grant the head of household male or female residential land plot with public facilities and services	F	111	118	28	22	3	6	6	3	2	1
		P	74.0	78.7	18.7	14.7	2.0	4.0	4.0	2.0	1.3	0.7
2	Grant male and female of 23 years and above residential land plot without public facilities and services	F	23	13	36	23	21	21	36	49	34	44
		P	15.3	8.7	24.0	15.3	14.0	14.0	24.0	32.7	22.7	29.3
3	Grant the residential land plot near workplaces or original place of residence	F	122	108	17	30	8	8	1	2	2	2
		P	81.3	72.0	11.3	20.0	5.3	5.3	0.7	1.3	1.3	1.3

A: applied G: granted

Citizens' views about housing finance approaches

Categories		F/P	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
			A	G	A	G	A	G	A	G	A	G
1	Grant the head of household government subsidised housing loan to build a house.	F	110	102	34	42	4	5	2	1	0	0
		P	73.3	68.0	22.7	28.0	2.7	3.3	1.3	0.7	0	0
2	Grant the head of household government subsidised housing loan to buy a completed house.	F	89	84	49	52	10	12	2	2	0	0
		P	59.3	56.0	32.7	34.7	6.7	8.0	1.3	1.3	0	0
3	Administered by government in coordination with private sector.	F	62	50	51	20	23	12	7	12	7	0
		P	41.3	33.3	34.0	13.3	15.3	8.0	4.7	8.0	4.7	0

A: applied G: granted

Citizens' views about developing government public facilities before residential land plot are distributed

Government Public facilities	F/P	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
		A	G	A	G	A	G	A	G	A	G
Schools	F	128	126	20	14	2	9	0	1	0	0
	P	85.3	84.0	13.3	9.3	1.3	6.0	0	0.7	0	0
Roads	F	140	136	8	10	2	4	0	0	0	0
	P	93.3	90.7	5.3	6.7	1.3	2.7	0	0	0	0
Mosque	F	142	139	7	8	1	3	0	0	0	0
	P	94.7	92.7	4.7	5.3	0.7	2.0	0	0	0	0
Health Centre	F	125	118	20	21	4	10	1	1	0	0
	P	83.3	78.7	13.3	14.0	2.7	6.7	0.7	0.7	0	0
Park and play ground	F	105	110	31	29	14	10	0	1	0	0
	P	70.0	73.3	20.7	19.3	9.3	6.7	0	0.7	0	0
Police and fire station	F	93	89	40	34	16	25	1	2	0	0
	P	62.0	59.3	26.7	22.7	10.7	16.7	0.7	1.3	0	0
community hall	F	91	107	33	29	24	9	1	5	1	0
	P	60.7	71.3	22.0	19.3	16.0	6.0	0.7	3.3	0.7	0
Grave yard	F	80	93	41	34	26	17	3	4	0	2
	P	53.3	62.0	27.3	22.7	17.3	11.3	2.0	2.7	0	1.3

A: applied G: granted

Citizens' views about developing private public facilities before residential land plot are distributed

Private public facilities	F/P	Strongly agree		Agree		Uncertain		Disagree		Strongly Disagree	
		A	G	A	G	A	G	A	G	A	G
Commercial	F	114	116	30	27	6	6	0	1	0	0
	P	76.0	77.3	20.0	18.0	4.0	4.0	0	0.7	0	0
Nursery	F	117	95	26	41	7	13	0	1	0	0
	P	78.0	63.3	17.3	27.3	4.7	8.7	0	0.7	0	0
Petrol station	F	98	78	37	34	13	32	1	6	1	0
	P	65.3	52.0	24.7	22.7	8.7	21.3	0.7	4.0	0.7	0

A: applied G: granted

Citizens' views about developing public services before residential land plots are distributed

Public services	F/P	Strongly agree		Agree		Uncertain		Disagree		Strongly Disagree	
		A	G	A	G	A	G	A	G	A	G
Electricity	F	142	140	5	8	3	2	0	0	0	0
	P	94.7	93.3	3.3	5.3	2.0	1.3	0	0	0	0
Water	F	143	141	4	8	3	1	0	0	0	0
	P	95.3	94.0	2.7	5.3	2.0	0.7	0	0	0	0
Telephone line	F	113	120	25	24	10	6	2	0	0	0
	P	75.3	80.0	16.7	16.0	6.7	4.0	1.3	0	0	0
Mobile phone	F	127	132	14	11	8	7	1	0	0	0
	P	84.7	88.0	9.3	7.3	5.3	47	0.7	0	0	0
Sewage	F	122	124	21	18	5	8	1	0	1	0
	P	81.3	82.7	14.0	12.0	3.3	5.3	0.7	0	0.7	0
Waste collection	F	112	118	25	25	13	7	0	0	0	0
	P	74.7	78.7	16.7	16.7	8.7	4.7	0	0	0	0
Post office	F	83	75	45	43	21	30	1	2	0	0
	P	55.3	50.0	30.0	28.7	14.0	20.0	0.7	1.3	0	0

A: applied G: granted

Citizens' views about financing and operating public facilities and services

Categories		F / P	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
			A	G	A	G	A	G	A	G	A	G
1	The government should build and operate government facilities.	F	117	111	28	33	5	4	0	2	0	0
		P	78.0	74.0	18.7	22.0	3.3	2.7	0	1.3	0	0
2	The private sector should build and operate the private facilities.	F	67	64.0	68	65	13	9	2	11	0	1
		P	44.7	42.7	45.3	43.3	8.7	6.0	1.3	7.3	0	0.7
3	The government investment companies should build and operate public services.	F	92	88	46	52	9	4	2	5	1	1
		P	61.3	58.7	30.7	34.7	6.0	2.7	1.3	3.3	0.7	0.7
4	The citizens should pay 10% of the cost for the public services.	F	31	37	40	37	28	2.3	19	29	32	24
		P	20.7	24.7	26.7	24.7	18.7	15.3	12.7	19.3	21.3	16

Appendix I

Site visit observation: results for the selected new residential neighbourhoods

The cities chosen for site visit observation

City	Population	Households	Area km^2	Plan areas	Location	Total plots
Saham	82158	12450	3600	Alsahmi	City centre	1063
				Mukilif	City suburb	1341
				Almahab	Rural area	79
Shinas	44220	6688	2800	Alqwabi	City centre	1788
				Alaqor	City suburb	673
				Faid	Rural area	90

Their locations

Cities	Plan areas	Location	Link to existing housing areas	Government open spaces	Private open spaces
Saham	Alsahmi	City centre	Yes	Yes	No
	Mukilif	City suburb	No	Yes	No
	Almahab	Rural area	Yes	Yes	No
Shinas	Alqwabi	City centre	Yes	Yes	No
	Alaqure	City suburb	Yes	Yes	No
	Faid	Rural area	Yes	Yes	No

Their design

City	Plan areas	Plots marked	Roads & corridors marked	Utilities routes marked	Water flooding channels
Saham	Alsahmi	Yes	No	No	No
	Mukilif	Yes	No	No	No
	Almahab	Yes	No	No	No
Shinas	Alqwabi	Yes	No	No	No
	Alaqor	Yes	No	No	No
	Faid	Yes	No	No	No

The built plots in Saham city plan areas

Categories	Alsahmi		Mukilif		Almahab	
Residential	972 Plots		1205Plots		70Plots	
Status	Delivered	Built	Delivered	Built	Delivered	Built
	972(100%)	119(12%)	1205(100%)	48(4%)	70(100%)	19(27%)

The built plots in Shinas city plan areas

Categories	Alqwabi		Alaqor		Faid	
Residential	1634 Plots		593 Plots		84 Plots	
Plots status	Delivered	Built	Delivered	Built	Delivered	Built
	1634(100%)	36 (2%)	593(100%)	46 (8%)	84(100%)	1 (1.2%)

The public facilities and services provided in Saham city plan areas

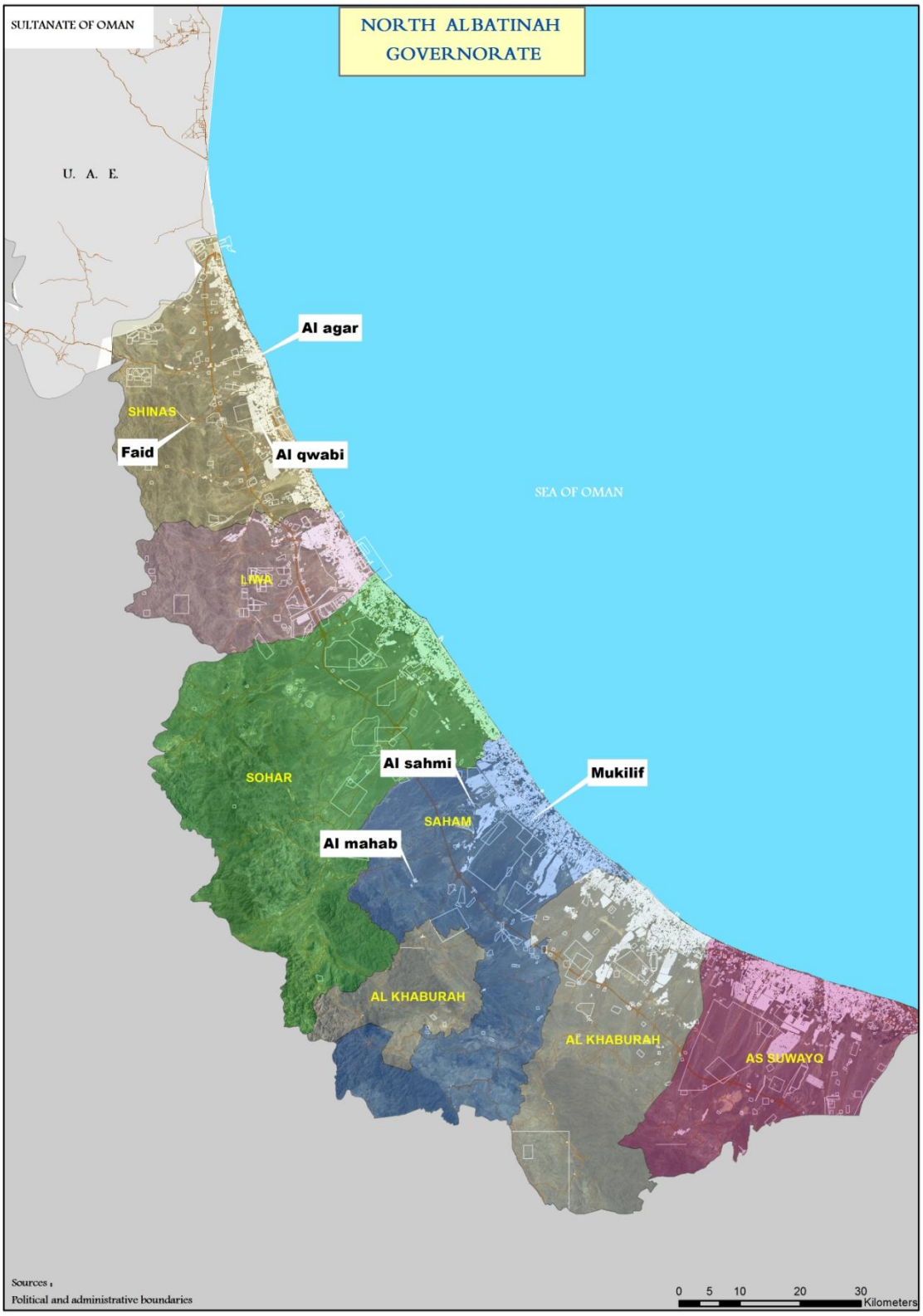
Categories	Plan area	Alsahmi		Mukilif		Almahab	
	Facilities Plot	91 Plots		136 Plots		9 Plots	
	Plots status	Planned	Built	Planned	Built	Planned	Built
Government public facilities	Schools	5	0	1	0	0	0
	Roads	30930m	1800m	24720m	2310m	3030m	1200m
	Mosques	6	1	4	0	2	1
	Health centre	1	0	1	0	0	0
	Park and play ground	16	0	32	0	1	0
	Police and fire station	1	0	1	0	1	0
	Community hall	2	0	4	0	2	0
	Grave yard	0	0	1	0	0	0
Private public facilities	Commercial	58	0	90	0	3	0
	Nursery	1	0	1	0	0	0
	Petrol station	0	0	0	0	0	0
Public services	Electricity	Yes	Yes	Yes	Yes	Yes	Yes
	Water	No	No	No	No	Yes	Yes
	Telephone line	No	No	No	No	No	No
	Mobile phone	Yes	Yes	Yes	Yes	Yes	Yes
	Sewage	No	No	No	No	No	No
	Waste collection	Yes	Yes	Yes	Yes	Yes	Yes
	Post office	1	0	1	0	0	0

The public facilities and services provided in Shinas city plan areas

Categories	Plan area	Alqwabi		Alaqor		Faid	
	Facilities plots	154 Plots		80 Plots		6 Plots	
	Plots status	Planned	Built	Planned	Built	Planned	Built
Government public facilities	Schools	5	0	2	2	0	0
	Roads	33030m	0	24330m	3600m	2920m	700m
	Mosques	3	0	3	0	1	0
	Health centre	1	0	1	0	0	0
	Park and play ground	22	0	10	0	1	0
	Police and civil station	1	0	1	0	0	0
	Social hall	3	0	3	0	1	0
	Grave yard	0	0	0	0	0	0
Private public facilities	Commercials	117	0	58	0	2	0
	Nursery	1	0	1	0	1	0
	Petrol station	0	0	0	0	0	0
Public services	Electricity	Yes	Yes	Yes	Yes	Yes	Yes
	Water	No	No	No	No	No	No
	Telephone	No	No	No	No	No	No
	Mobile	Yes	Yes	Yes	Yes	Yes	Yes
	Sewage	No	No	No	No	No	No
	Waste collection	Yes	Yes	Yes	Yes	Yes	Yes
	Post office	1	0	1	0	0	0

Appendix J

Map of the Governorate of North Al Batinah includes the new residential neighbourhoods visited for the study.

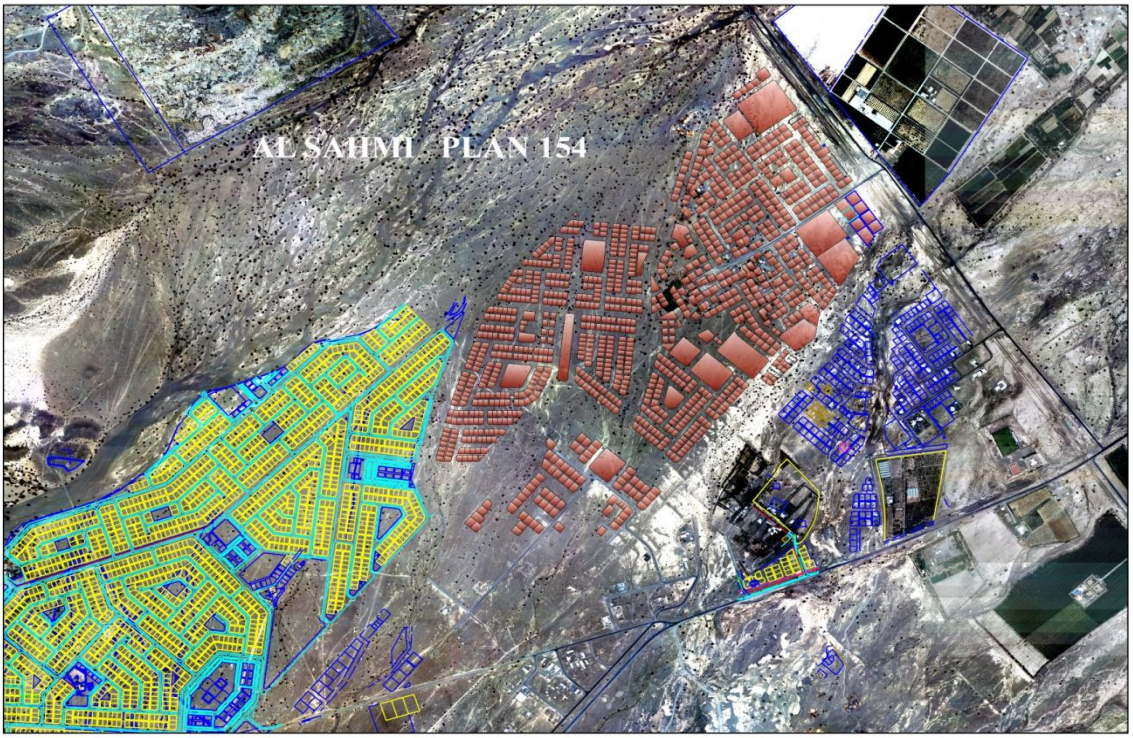


Source: Implemented from National Centre for Statistics and Information and Ministry of Housing GIS.

Appendix K

The drawing of selected existing new residential neighbourhoods in Saham city

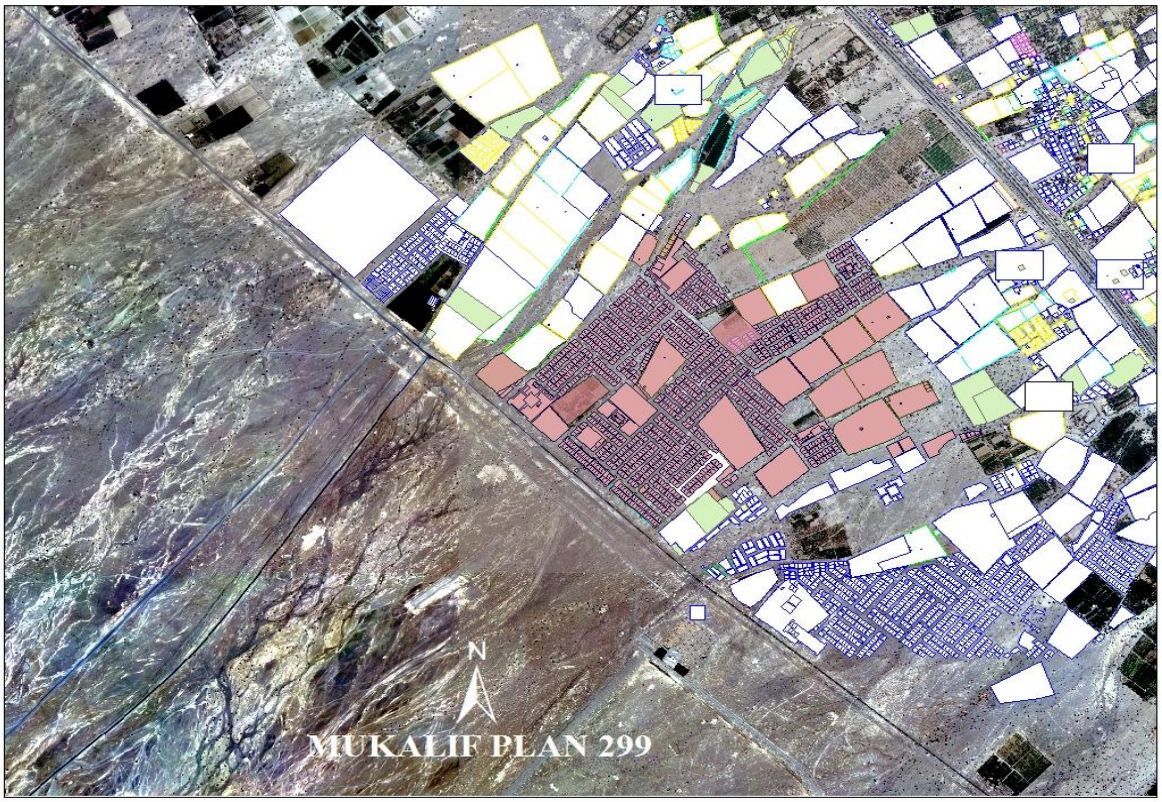
Alsahmi (city centre)



Alsahmi plan area satellite and drawing mixed image

Alsahmi plan area site photo image

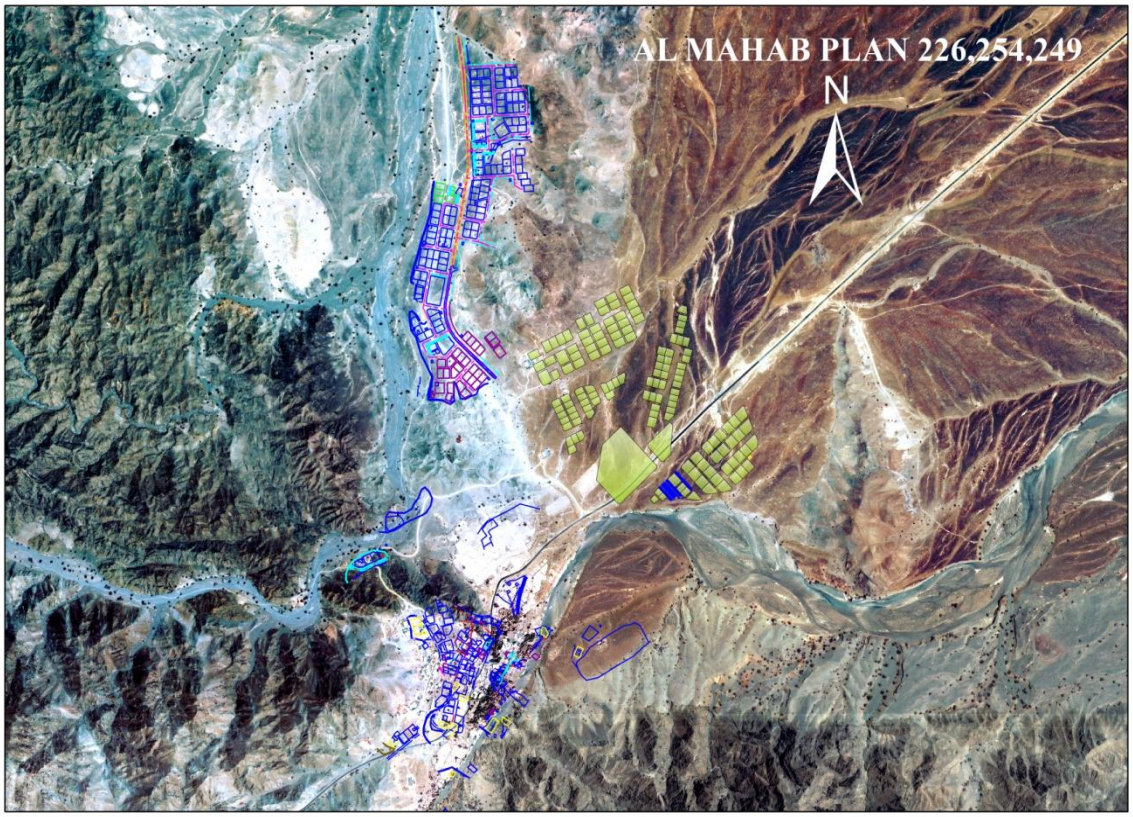
Mukilif (city suburb)



Mukalife plan area satellite and drawing mixed image

Mukalife plan area site photo image

Almahab (rural area)



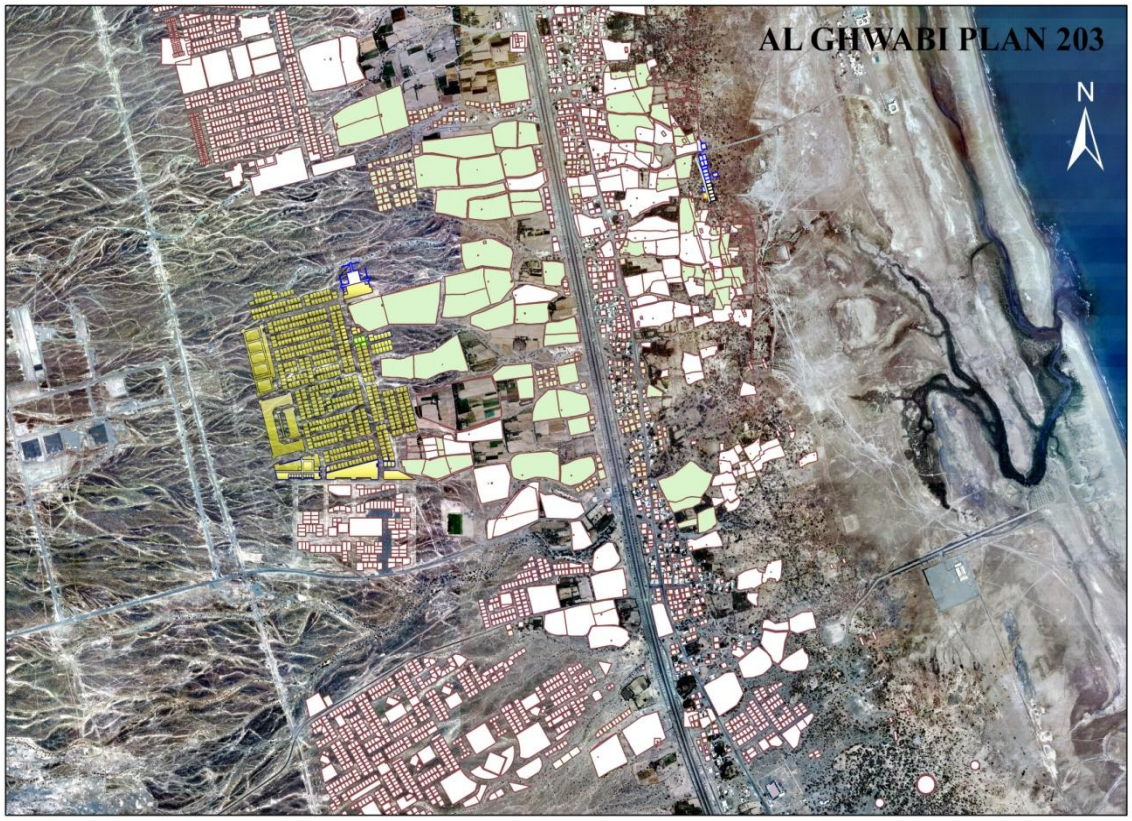
Almahab plan area satellite and drawing mixed image

Almahab plan area site photo image

Appendix L

<u>The drawing of selected existing new residential neighbourhoods in Shinas city</u>

<u>Alqwabi (city centre)</u>



Alqwabi plan area satellite and drawing mixed image

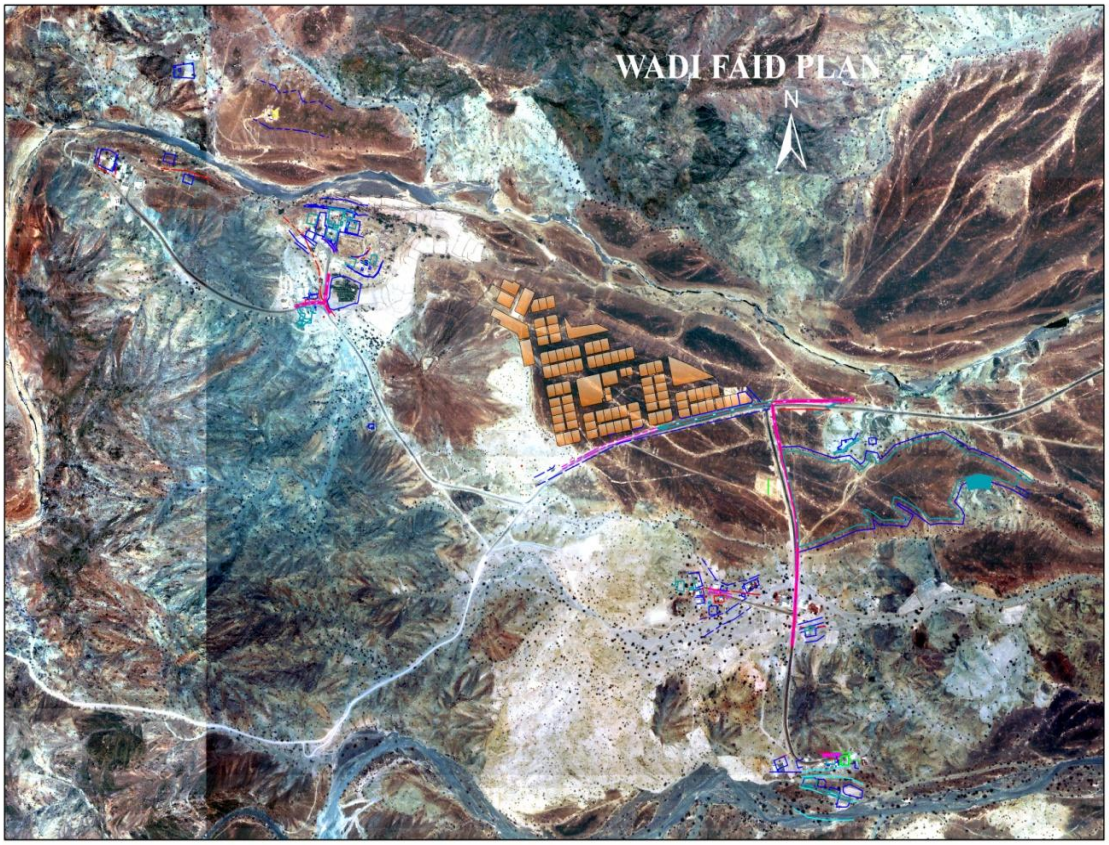
Alqwabi plan area site photo image

Alaqar (city suburb)

Alaqer plan area satellite and drawing mixed image

Alaqer plan area site photo image

Faid (rural area)



Faid plan area satellite and drawing mixed image

Faid plan area site photo image